

# THE IRON AGE

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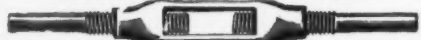


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See Ad. on Page 15.

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See page 55

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THE AMERICAN TUBE & STAMPING COMPANY  
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# THE IRON AGE

New York, Thursday, March 12, 1908.

## The Coal Briquetting Plant at Bankhead, Canada.

In an illustrated article in *The Iron Age* of April 19, 1906, describing the New Jersey Briquetting Company's plant in Brooklyn, N. Y., the general features of the Zwoyer Fuel Company's process for manufacturing coal briquettes were detailed. In brief the process consists in reducing the coal or "mined dust" to a uniform fineness by rolls or a disintegrator, then passing it through mixers in which it is heated and mixed with the binder, consisting of coal tar pitch to the extent of 8 to 10 per cent. of the weight of the coal. There are six mixers. In passing through Nos. 1 and 2 the dust is heated to drive off

ton, D. C., presented the paper given below, describing the latest briquetting plant erected to employ the Zwoyer process, that at Bankhead, Alberta, Canada:

The plant was built at the Bankhead Mines, Ltd., to manufacture briquettes by the Zwoyer process under license from the Zwoyer Fuel Company, 60 Wall street, New York. The building was constructed to contain two units of 10 tons per hour capacity, one unit being installed at the time the building was constructed. The product and machinery having exceeded expectations, the second unit has been ordered and is being installed.

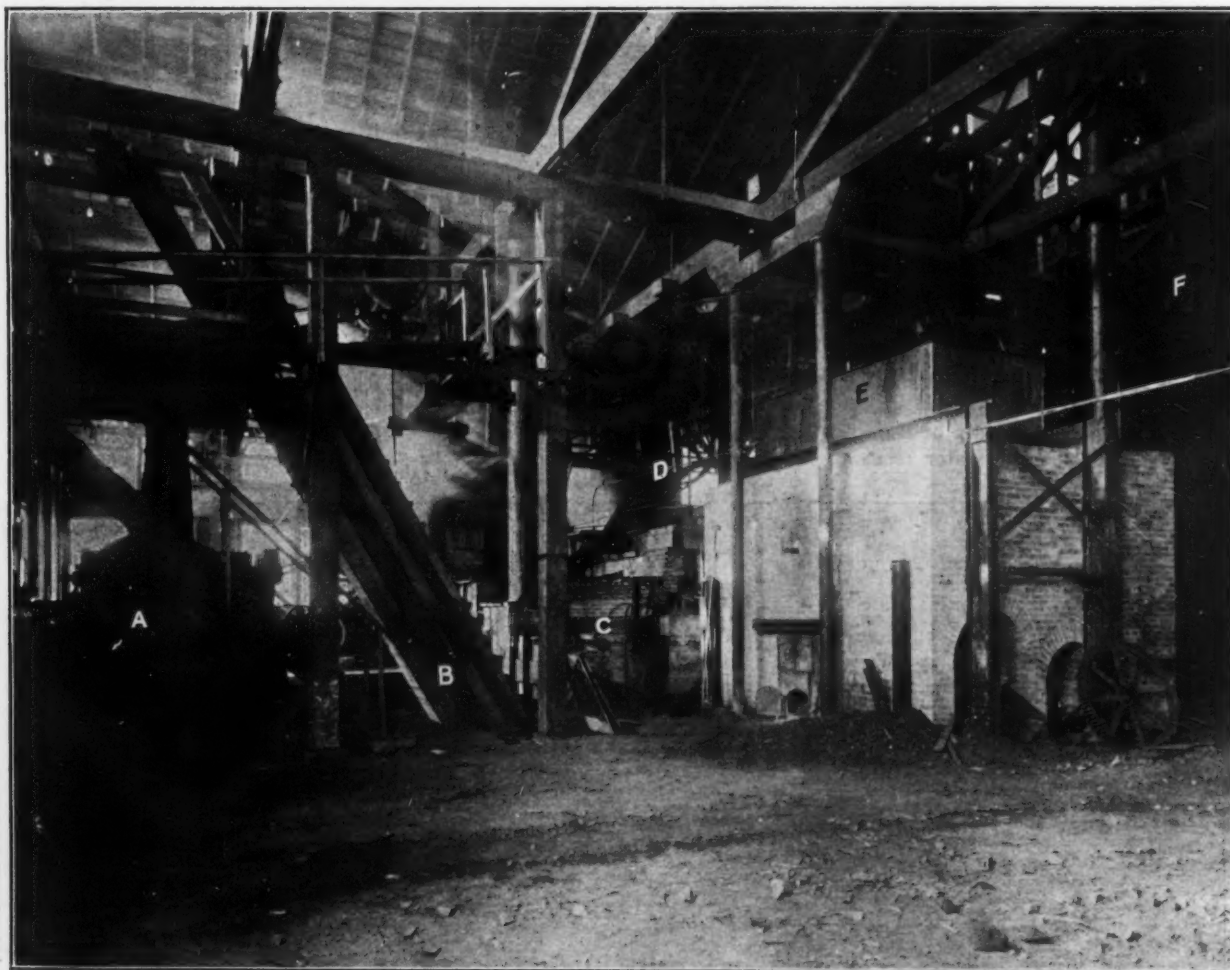


Fig. 1.—Interior View of the Briquette House at Bankhead Mines, Alberta, Canada.—A, Briquetting Press; B, Elevator from Mixer No. 6 to Press; C, Mixers; D, Pitch Pipe to Mixers; E, Pitch Tank; F, Dust Bin.

all moisture. The coal tar being previously heated is introduced into No. 3 mixer. It is atomized by a steam jet and blown in the direction opposite to that taken by the dust, which is thrown into suspension by the mixer blades, so that the pitch may reach each particle. As the mixture passes through Nos. 4 and 5 mixers heat is added. In No. 6 mixer the material cools down to the proper temperature for the press, to which it is conveyed by an elevator. From the press the briquettes are carried by an endless belt conveyor to the cooling table. The construction of the press, the shape and size of the briquettes, and the details of the cooling operation which requires about an hour, were referred to in the original article in these columns.

At the meeting of the American Institute of Mining Engineers in New York, February 19, 1908, Edward W. Parker of the United States Geological Survey, Washing-

The coal being briquetted is an anthracite, which is more friable than the Pennsylvania anthracite, consequently a larger percentage of dust or waste is produced. This was formerly thrown upon the slackpile as waste, but now passes to the "dust bin" in the breaker from which it is conveyed to the briquette plant. An average analysis of the coal is as follows: \*

	Per cent.
Moisture .....	0.50
Volatile .....	8.00
Fixed carbon.....	83.50
Ash .....	8.00
Total.....	100.00
Sulphur .....	0.4
Specific gravity, 1.40; ash, white; B.t.u., 14,000.	

The plant is run under two shifts of 12 hr. each. There

\* Paper of Lewis Stockett and B. R. Worden, read before the Canadian Mining Institute, Vol. IX.

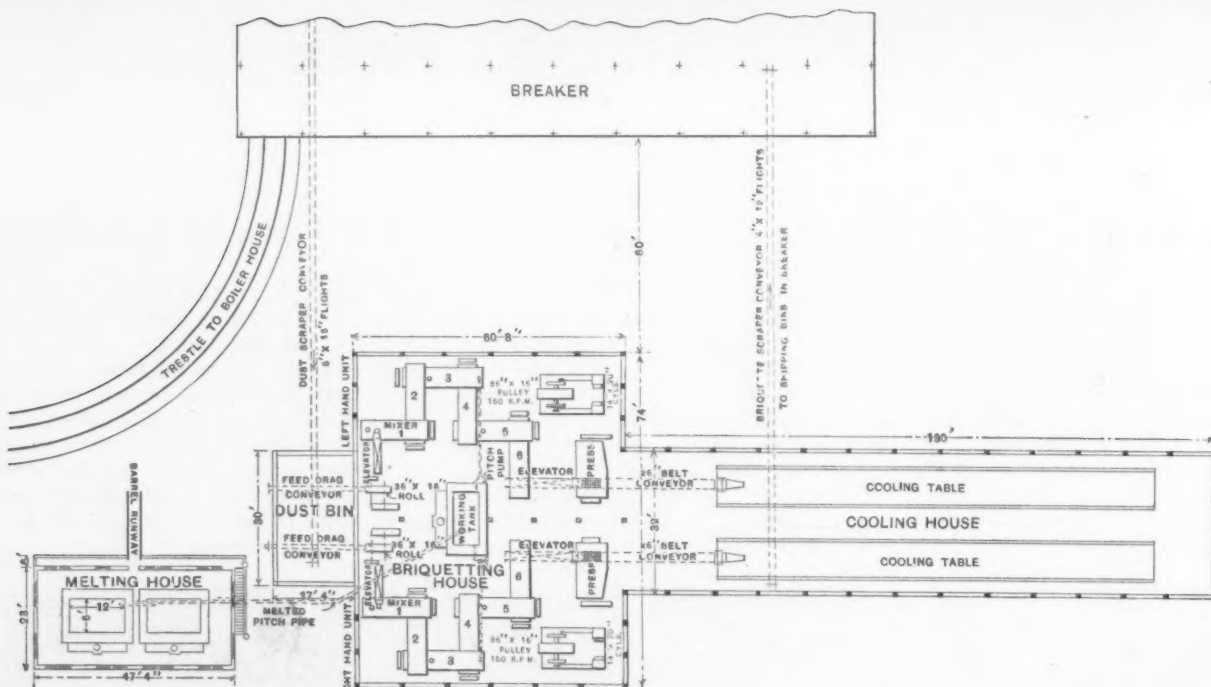


Fig. 2.—Plan of the Two-Unit Coal Briquetting Plant at Bankhead.

is for each shift one superintendent, one engineer, one briquetter, one helper and one laborer for cleaning up. In the pitch melting house are two men on one shift only. The steam for the engine is furnished from a central boiler plant, which also supplies steam for the breaker, the electric light and power plant, machine shop and boiler shop. During March, April, May and half of June, 1907, the plant was run on part time, due to the reduction of boiler capacity on account of heavy scale being formed on the boiler tubes and sheets, and to the miners' strike. About the middle of June an additional boiler was installed, and the water from a spring supplied by

the melting snow was used. This enabled them to run the briquetting plant from Monday morning until Sunday morning continuously. Any loss of time at present will be from failure to obtain cars for loading the briquettes:

	Tons.
The run for June was.....	4,882
The run for July, 459 hr., was.....	4,593
The run for August, 499 hr., was.....	7,054
The run for September, 420 hr., was.....	5,432
The run for October, 570 hr., was.....	7,668
The run for November, 558 hr., was.....	8,147

During October, notwithstanding the loss of five days



Fig. 3.—General Arrangement of Plant of Bankhead Mines, Ltd.—A, Slack Dump; B, Breaker; C, Briquette Building; D, Dust Conveyor; E, Boiler House; F, Electric Plant.



(four days on account of not having cars to load and a day in installing a pitch tank for the second unit), the production, as shown above, amounted to 7668 tons in a total running time of 570 hr. Had it not been for this delay the production would probably have exceeded 8000 tons, as was done in November, with a total of 8147 tons and 558 hr. of run. The average run in October was 13.45 tons per hour. In November the average run was 14.6 tons per hour.

The latest information regarding the operations of the Bankhead plant was received about January 1. This was to the effect that a second press had been shipped from New York the early part of December, and that as soon as it was received and in place so that a sufficient output could be obtained, one division of the Canadian Pacific Railroad would burn nothing but briquettes on its locomotives. This would indicate that the experiments up to the first of the year had been quite satisfactory; otherwise, the railroad company would not have gone to the expense and trouble of drafting its locomotives to burn briquettes exclusively. When the additional unit is in operation it is expected that the plant will produce from 15,000 to 16,000 tons of briquettes per month. Domestic consumers seem to be well pleased, and there is a large demand for briquettes, which sell for \$4 per ton at the plant.

The briquette plant consists of a pitch melting house and the main building, which includes dust bin, machinery house and cooling house. The pitch melting house is separated from the main building, and is about 23 x 47 ft., containing two melting tanks, 12 x 6 ft. by 8 ft. deep. The dust bin is 20 x 30 ft. by 24 ft. deep, and is located at the rear of the machinery house. The machinery house is 60 x 73 ft., and contains the briquetting machinery proper, a crusher, a mixer of six units, a pitch storage tank, 12 x 6 ft. by 8 ft. deep; a double cylinder engine, 14 x 20 in. stroke; two dust elevators, and the briquette press. The cooling house is 31 x 129 ft., and contains the cooling table and machinery for driving the briquette conveyor. Fig. 1 is an interior view of the machinery house, and shows the press at the left, back of which the engine is placed; the conveyor from No. 6 mixer to the press; the mixers in the center and back; the pitch storage tank at the right, and bins forming the end of the building. A plan view of the entire plant is given in Fig. 2. In Fig. 3 is a general photographic view of the Bankhead Mines buildings, including the briquette plant at the right of the breaker. The boiler plant is located on the right between the briquette plant and the electric light and power plant. The slackpile is shown on the low ground at the left of the breaker.

The dust from the operations of the breaker is conveyed to a dust bin at one end of the breaker from which it is taken by a scraper conveyor to the dust bin in the briquetting plant. It is removed from the bins and conveyed to the crusher by a drag chain. The dust passes through the crusher, and is elevated to a series of six mixers where it is heated by means of the hot gases from the mixer furnace, which enter the mixers through flues in their sides. The pitch is introduced by means of an atomizer while the dust is passing through the mixers. When the mixture reaches the end of No. 6 mixer it is conveyed by an elevator to the press. From the press the briquettes are carried by a belt conveyor to the distributor over the cooling table, then carried back and forth the length of the table seven and three-quarters times and dropped into the briquette conveyor. This carries them to the briquette bins in the breaker, from which they are loaded by means of chutes on flat cars and by means of a Victor box car loader into box cars. There is no handling of material except by machinery, which gives a continuous operation from the time the dust leaves the breaker until it is returned to the breaker in the form of briquettes.

The American Bureau of Inspection and Tests, Monadnock Block, Chicago, has issued a booklet for general distribution, giving the full text of the new specifications for standard Bessemer steel rails adopted November 1, 1907, by rail manufacturers in the United States and Canada.

## January Exports and Imports of Iron and Steel.

The January report of the Bureau of Statistics of the Department of Commerce and Labor shows that the recession in exports of iron and steel, which had been in progress since November, continued. The total value of exports of iron and steel and manufactures thereof, not including ore, for the month of January was \$13,643,828, against \$14,967,869 in December, \$17,051,755 in November and \$18,951,198 in October, the last named month having attained the highest figures on record. In heavy lines the recession is similarly observed, as the January figures for exports of commodities for which quantities are given were 74,352 gross tons, against 85,999 tons in December, 116,308 tons in November and 123,216 tons in October. The following table gives details of the exports of such commodities for January and for the seven months of the current fiscal year ending with January, as compared with corresponding periods of the previous year:

Exports of Iron and Steel.

	January, 1908.		Seven months, 1907.	
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	2,546	8,086	34,619	51,456
Scrap.....	1,516	2,197	10,467	7,622
Bar iron.....	407	4,743	9,863	31,940
Wire rods.....	595	1	3,630	2,589
Steel bars.....	5,101	3,061	45,097	20,893
Billets, blooms, &c....	5,317	12,325	34,525	75,408
Hoop, band, &c.....	934	962	7,015	4,327
Steel rails.....	16,285	26,341	212,176	174,648
Iron sheets and plates..	3,307	2,075	25,936	13,673
Steel sheets and plates..	4,581	7,705	37,487	56,761
Tin andterne plates..	963	272	4,859	2,847
Structural iron and steel.....	11,017	9,314	84,472	69,459
Wire.....	12,022	10,794	97,342	96,133
Cut nails.....	449	443	3,558	4,494
Wire nails.....	2,678	2,808	23,391	21,284
All other nails, including tacks.....	559	452	4,030	3,762
Pipes and fittings....	6,075	11,051	117,231	73,508
Totals.....	74,352	102,630	755,698	710,804

The imports of iron and steel continue comparatively inconsiderable, as the total value for January, not including ore, was \$2,076,766, against \$2,049,560 in December. The January total of imports of commodities for which quantities are given was 28,008 gross tons, compared with 20,255 tons in December and 35,255 tons in November. The slight gain in the January imports was due to somewhat larger importations of pig iron and tin plate. The following table shows the details of the imports of these commodities for January and for the seven months of the current fiscal year ending with January, as compared with corresponding periods of the previous year:

Imports of Iron and Steel.

	January, 1908.		Seven months, 1907.	
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron.....	15,387	50,005	173,031	283,020
Scrap.....	678	2,776	16,124	12,019
Bar iron.....	4,066	3,987	24,623	23,397
Rails.....	149	134	2,181	3,024
Hoop, band, &c.....	41	990	226	4,045
Billets, bars and steel in forms n.e.s.....	759	2,083	12,301	12,812
Sheets and plates....	165	228	1,688	1,431
Tin andterne plates..	5,005	3,147	31,907	35,905
Wire rods.....	1,165	1,303	9,197	10,166
Structural iron and steel.....	593	459	1,285	8,182
Totals.....	28,008	65,112	272,563	394,001

The imports of iron ore in January were 57,659 gross tons, against 87,100 tons in January, 1907. Imports of ore from Cuba in January were 47,450 tons, against 52,300 tons in January, 1907.

Exports of steel rails, billets, beams, blooms, bars, plates, hoops, wire, &c., in February totaled 92,036 tons from the Eastern seaboard ports alone. This shows an increase of 175 per cent. over the shipments from these ports for January, notwithstanding the fewer working days last month. The February tonnage is 50 per cent. higher than the average monthly exports for last year.

### Collapsible Core Barrels for Ingot Molds.

To the steel manufacturer the ingot mold is an important part of his equipment and a large item of ex-

expanded to the extent they should. The explanation seems to be that after a mold is poured and begins to cool off and shrink it meets resistance from the rigid barrel, with its small coating of sand, and the barrel itself becoming heated from the hot casting expands



Fig. 1.—View in Lackawanna Steel Company's Ingot Mold Foundry Showing Flasks After Pouring, Also Core Barrels After Extraction.

pense. The method of manufacture is very similar in most ingot mold foundries, and the style of flasks, core barrels and general equipment is quite uniform. A saving of a dollar or even 50 cents a ton on the thousands of tons produced in a month by a large steel plant means a great aggregate at the end of the year, and any method of reducing the cost of ingot mold production is welcomed. Chief items of expense are the core barrels and the labor of extracting them after the mold is poured. The contraction of the casting as it cools off wedges the barrel very tightly and it requires powerful machines to remove it. Several pushers have been designed, and other devices are used to force or hammer out the barrel, all of which are expensive to make, keep in repair and operate, and the use of such powerful extractors is destructive to the barrel, while its life is further shortened by warping. Breaking and warping thus mean a constant supply of new barrels in a large mold foundry.

At the plant of the Lackawanna Steel Company, Buffalo, N. Y., the expensive barrel and pusher have been replaced by a recently patented collapsible core barrel and an extractor, which have been in operation for two years and have proved very successful as cost savers. This barrel is no more expensive to make than the rigid barrel and its life is practically unlimited. The method of extraction is very simple. The lifting of the flask containing the casting from off the bottom or drag forces the barrel out. It is stated that 25 barrels have been extracted in 15 min., which was as fast as the crane could hoist the flasks. The method of extraction is shown in Figs. 1 and 2.

A large item of expense saved is flour, which is extensively used as a wash on the rigid barrels and burns off after the mold is poured. To some extent this releases the barrel, thus reducing the pressure required to force it out. Without flour there is more destruction of a rigid barrel. On the collapsible device a simple clay wash to hold the sand is all that is used.

In another respect this core barrel has an advantage. A steel mill superintendent, who has had trouble getting his ingots stripped, has noticed that the molds have not



Fig. 2.—The Method of Extraction.—Construction of Collapsible Core Barrel Shown at the Left.

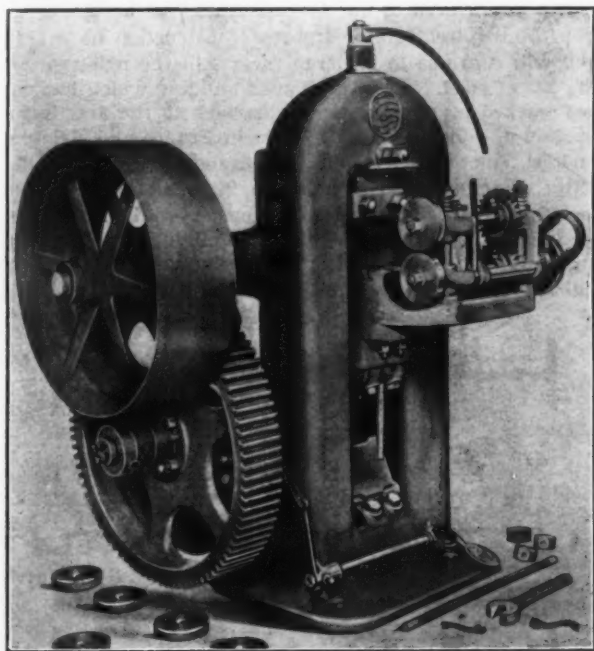
and counteracts the effort of the mold to contract, the result being a strained mold. By the quick collapsing and extraction of the patent barrel the casting has an opportunity to shrink to the full limit, and when in



service will expand in greater proportion, allowing the ingot more liberty. In other words, if the mold with the collapsed barrel would have an opportunity to shrink  $\frac{1}{4}$  in. it would expand the same amount when heated by an ingot; on the other hand, with the rigid barrel about 1-16 in. is the limit of contraction, leaving the mold practically at the size it will have when containing a hot ingot. It is also proved that by the better venting of this barrel for the escape of gases a smoother mold free from scabs is produced. Use has been made of the collapsible barrel with good results also on castings similar to ingot molds.

#### A Ferracute Cable-Mashing Press.

The strands of an ordinary rope are approximately of circular section, and on being twisted together the circles come in contact, forming spiral longitudinal tangential lines. The space between the circles is wasted,



An Embossing Type of Press Built by the Ferracute Machine Company, Bridgeton, N. J., and Adapted to Mashing Wire Cable to Approximately True Circular Section.

the finished cable being of larger diameter than if the strands or small cables which make the large one were of polygonal section, in which case the faces of the polygons would coincide. Round strands make a rope more flexible, as the spiral cylinders roll on each other, but when stiffness and strength for a given diameter are desired the strands should have flat faces, a condition that cannot be produced in the spinning operation.

The Ferracute Machine Company, Bridgeton, N. J., has built several presses of special design for an English manufacturer of wire cables, the function of the press being to mash the round strands of wire into sections that are sectors of a circle, or, to use a more familiar and homely expression, the shape of a piece of pie. This shape was chosen because it allowed of considerable latitude, as a cable could be made up of any reasonable number of similar sectors.

To crush or mash down even a small steel cable requires considerable power. The press selected for the work was therefore of the coining or embossing type, as shown in the illustration. The frame is a massive iron casting containing steel toggles capable of giving a ram pressure of 150 tons. The press is geared, the pinion being part of the steel forged back shaft, and all teeth cut from the solid. The clutch is of an effective and durable type, the adjustment being such that a pressure on the treadle causes the press to make one stroke and then stop, unless the treadle is locked down, in which case continuous strokes would be made.

The automatic roller feed attachment is an impor-

tant feature. It consists of a pair of grooved rolls fitted to the cable to be mashed, the driving mechanism being so timed that several inches of round cable are fed between the dies when they are apart, the rolls being inactive during the mashing process, the dies constantly opening and closing between the times of feeding and mashing the cable to the particular shape desired. An indefinite number of sizes and shapes can be produced in the press by merely providing dies and rolls to correspond. Several sets of these tools were sent with the presses to England.

The dimensions of the machine are as follows: Distance between columns, 10 in.; stroke,  $\frac{3}{4}$  in.; adjustment of head,  $\frac{1}{2}$  in.; speed of main shaft, 50 rev. per min.; total weight, 5500 lb.

#### The Railway Steel Spring Company's Report.

President W. H. Silverthorn has submitted a statement to the stockholders of the Railway Steel Spring Company, showing the company's financial condition at the close of business December 31, 1907, which compares as follows with a similar statement for the previous year:

	1907.	1906.
Net earnings.....	\$2,320,136.76	\$2,341,120.19
Less interest on Latrobe plant bonds .....	216,632.78	215,587.48
Balance.....	\$2,103,503.98	\$2,125,532.71
Less dividends.....	1,484,974.25	1,484,967.00
Balance.....	\$618,529.73	\$640,565.71
Account Latrobe plant purchase. ....		450,000.00
		\$190,565.71
Previous surplus.....	2,236,464.87	2,045,899.16
Surplus December 31.....	\$2,854,994.60	\$2,236,464.87
<i>Assets.</i>		
Plants .....	\$30,290,638.11	\$29,627,026.25
Merchandise on hand.....	2,341,340.43	2,203,043.43
Stocks, bonds and investments..	185,408.85	202,158.85
Accounts receivable.....	2,348,821.30	1,873,451.29
Other items.....	84,131.85	38,998.67
Cash .....	264,058.42	312,637.42
Totals.....	\$35,514,398.96	\$34,257,315.91
<i>Liabilities.</i>		
Capital Stock—Preferred shares..	\$13,500,000.00	\$13,500,000.00
Capital stock—Common shares..	13,500,000.00	13,500,000.00
Latrobe plant bonds.....	4,223,000.00	4,362,000.00
Accounts payable.....	1,238,915.47	330,434.38
Bills payable.....	50,000.00	200,000.00
Reserved for preferred stock dividend, taxes, &c.....	147,488.89	128,416.66
Surplus .....	2,854,994.60	2,236,464.87
Totals.....	\$35,514,398.96	\$34,257,315.91

#### Large Contracts for McClure Hot Blast Stoves.—

G. W. McClure, Son & Co., Bessemer Building, Pittsburgh, have recently received a contract from the Tennessee Coal, Iron & Railroad Company, Birmingham, Ala., for seven McClure three-pass hot blast stoves, 21 ft. in diameter by 100 ft. high, on which work will be commenced at once. They have also secured a contract for remodeling and relining Belmont Furnace of the Wheeling Steel & Iron Company, Wheeling, W. Va.; also for relining the Martin's Ferry, Ohio, furnace of the same company. They have just completed a 19 x 85 ft. McClure stove for the Genesee Furnace Company, Charlotte, N. Y. also a 22 x 100 ft. stove at Edith Furnace of the American Steel & Wire Company, Allegheny, Pa., and are now turning out the ironwork for another stove at the same place. A 21 x 85 ft. stove has recently been completed for the United Iron & Steel Company, Leetonia, Ohio, and also the ironwork for another 21 x 70 ft. stove for the company's furnace at West Middlesex, Pa.

The Stiles Foundry & Supply Company, Parkersburg, W. Va., manufacturer of gray iron, brass and aluminum castings, emery grinders, shaft hangers, transmission accessories, &c., has installed additional equipment and will shortly place on the market a new engine lathe, complete with taper attachment, &c., in sizes from 14 to 16 in. swing.

## New Forms of Steel for New Uses.\*

### The Development of the Field for Steel Sheet Piling—A Great Diversity in Design.

BY R. B. WOODWORTH.

The production of steel plates is in a measure an index to the development of certain classes of construction distinctive of the closing years of the nineteenth century and the inception of the twentieth. Steel as a material for shipbuilding construction was first introduced under modern methods of manufacture in the period from 1870 to 1875, but the first all-steel merchant vessel seems to have been the Cunard liner *Servia*, built in 1881, and the first all-steel battleship seems to have been the *Benbow*, constructed by the British Government in 1885. In 1900, however, 93.21 per cent. of all the vessels of 100 tons register and over, whether on lake or ocean service, were constructed of steel, and the steady

The first of these is its fireproof character. This is not the principal reason, but beyond question it is a very important one. Our annual fire bill has been steadily growing as our population increased. In 1905, for example, building operations throughout the country represented a total investment of \$525,000,000, and in 1906 the high water mark in the nation's history, \$700,000,000. In 1904 our fire losses alone aggregated \$229,198,050. In 1906 the losses in the United States and Canada by fire were \$536,860,400. Of this last sum San Francisco was responsible for \$350,000,000, including buildings and contents. While the number of fireproof buildings is still really small, even in our largest cities, yet beyond question the requirements of fireproof construction have been and will continue to be large factors in the extension of the use of steel. The evolution in building which has not yet reached its culmination, dates back to the first introduction of rolled I-beams of iron in France and Belgium in 1854, but the famous Chicago fire showed the unreliability of unprotected iron beams in a hot fire. Unprotected steel is a better fire resisting material than unprotected iron, but the ideal modern building is a skeleton structure of steel fully protected by refractory materials, which, by reason of being once burnt, are in a

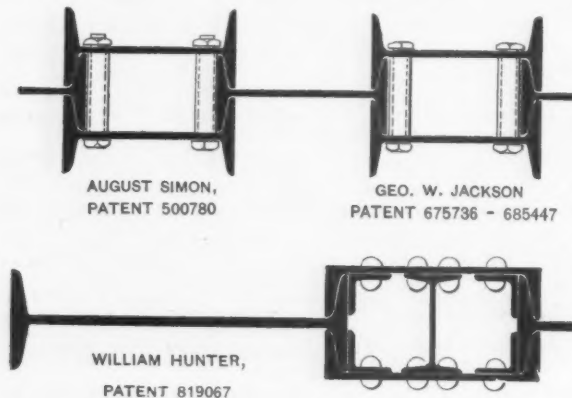


Fig. 1.—Fabricated Beam Types of Sheet Piling.

growth of plate production marks the gradual development of the shipbuilding industry. This development continued to be gradual until about 1896, about which time the first steel railroad car was built by the Keystone Bridge Works. Since that date the increase in plate production reflects the rapid development in the manufacture of steel cars. About 1898 the Schultz Bridge Company at McKees Rocks, Pa., built the first steel barge for river transportation, and the increased use of steel barges on our own rivers has added its quota to the increased production of steel plates.

#### Steel for Bridges and Buildings.

The production of steel shapes, meaning by that beams, beam girders, zees, tees, channels, angles, &c., is an index to the development of the steel bridge and especially of the steel building. In 1884 the first 15-in. steel beams were rolled at Upper Union Mills, Pittsburgh. They were followed by the rolling of 20-in. beams on the 33-in. mill, Homestead Steel Works, January 3, 1888; 24-in. beams on the 33-in. mill, Homestead Steel Works, June 19, 1889, and 18-in. beams on the 35-in. mill, Homestead Steel Works, February 3, 1897. The rolling of these sizes of beams has made possible and economical the skeleton steel building, and the production of shapes has grown in accordance with the growth of the modern office building in the principal cities of the United States. From 360,305 gross tons in 1894, the production of steel shapes advanced to 2,118,772 tons in 1906.

When steel was not the convenient material it is, other forms of construction may have taken its place, but, as matters stand to-day, steel is the only material known to the engineering profession which is absolutely homogeneous in all particulars, of unquestioned strength and reliability, easy to fabricate and erect, convenient and satisfactory in all respects. Besides its unquestioned economy, there are two considerations which have led to the large use of steel as the ideal building construction.

\* From a paper read before the Structural Section of the Engineers' Society of Western Pennsylvania, January, 1908. Mr. Woodworth is of the engineering staff of the Carnegie Steel Company.

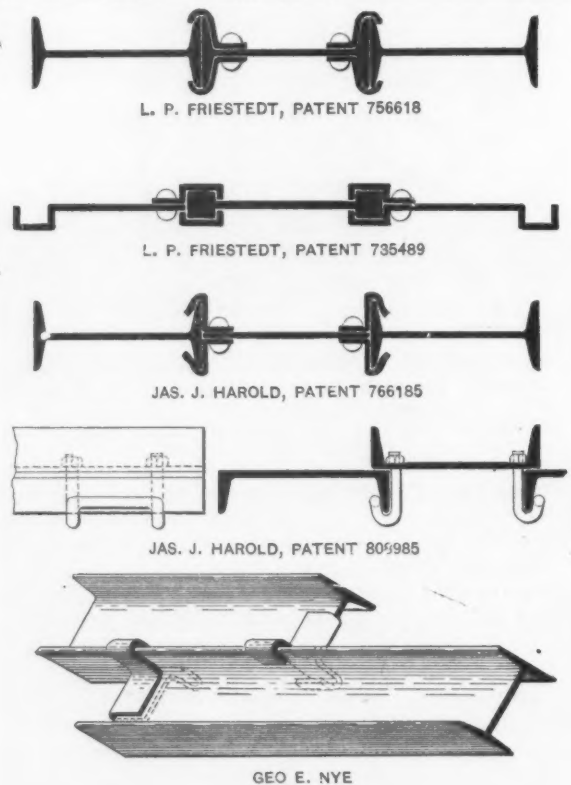


Fig. 2.—Beam Clip Types.

position to resist successfully, as they have done in numerous instances, the hottest temperature an office or warehouse building can develop.

#### Prices of Steel and Wood Approximating.

The chief factor, however, which has occasioned great extension in the use of steel bridges and buildings has been the rapid increase in the cost of timber, as well as the great decrease in the quality of the timber which actually comes on the market, and in this connection the annexed table showing the course of wholesale prices, from statistics furnished by the Bureau of Commerce and Labor, demonstrates very plainly that the price for lumber per 1000 ft. is gradually approaching the price of steel per ton, and that if conditions now in force con-



tinue, the difference between steel and wood will be quickly diminished. Five-year intervals are shown in the table for the period of 1890-1900:

Wholesale Prices of Lumber and Steel.

	Hemlock.	White oak.	White pine.	Yellow pine.	Spruce.	Steel.
1890.....	\$12.58	\$37.88	\$16.79	\$20.75	\$16.29	\$60.00
1895.....	11.15	36.25	17.25	16.92	14.25	28.00
1900.....	16.50	40.83	21.50	20.71	17.38	38.20
1901.....	15.00	36.77	20.88	19.67	18.00	31.55
1902.....	13.83	40.88	23.50	21.00	19.25	32.00
1903.....	16.79	44.83	24.00	21.00	19.19	32.00
1904.....	17.00	46.50	23.00	21.42	20.50	30.60
1905.....	17.88	47.33	24.17	24.92	21.42	32.60
1906.....	21.90	50.42	29.75	29.33	25.54	34.00

The price of steel beams and channels is f.o.b. cars. Pittsburgh, per ton of 2000 lb. Prices for lumber are per 1000 ft. board measure. Prices for hemlock are based on 2 x 4 pieces 12 to 14 ft. long, Pennsylvania stock, f.o.b. New York. Prices of white oak are for 1 x 6 boards, same place. Prices of white pine are for No. 2 barn grade, 1 x 10 rough, f.o.b. cars, Buffalo. Yellow pine prices are for 1 in. long leaf boards, f.o.b. cars, New York, and spruce 6 ft. to 9 ft. cargoes, New York City. It is to be noted that since 1897, a year of great

buildings must necessarily be restricted. There is no restriction to the use of steel.

It would be very interesting to touch upon quite a number of the uses of steel, which distinctly mark the beginning of the twentieth century. Iron has given place to soft steel in the manufacture of all kinds of agricultural shapes and machinery. Special forms of steel are used in the manufacture of turbine plates for the construction of the turbine, so prominent in transmission line construction. Steel wheels, whether cast or forged or steel tired, are rapidly taking the place of the ordinary iron castings, and we hear no more of the compressed paper wheel, which, it will be recalled, was seriously advocated some years ago. Our heaviest and best trains, composed of steel cars and coaches, are carried safely over roadbeds constructed of steel ties. The steel tie has not yet supplanted wood, but beyond question will form the ideal roadbed of the future.

#### Fabricated Beam Piling.

The production of structural shapes in this country, as has been stated, reflects accurately the expansion of steel construction in buildings and bridges, or the increasing use of steel in that class of construction which deals with the superstructure. It is confidently believed that the application of steel for use in the construction of foundations, cofferdams, &c., will play a large part in the shape

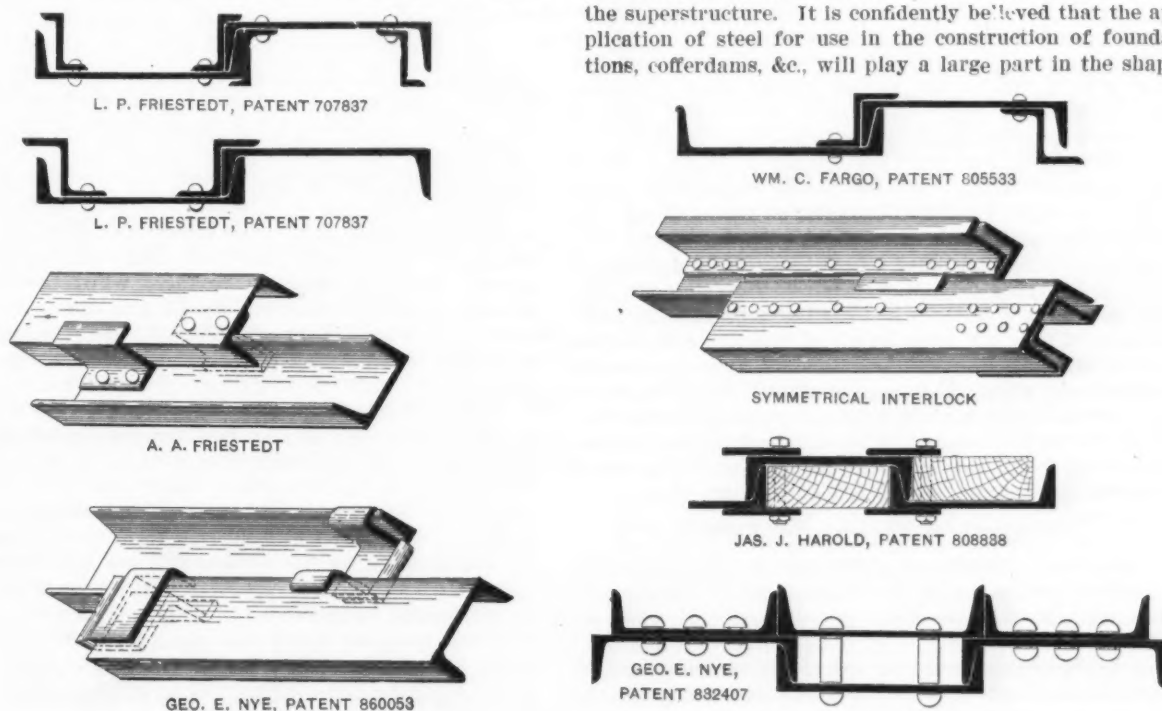


Fig. 3.—Interlocking Channel Bar Types.

industrial depression, the price of timber of the grades used in building has practically doubled, and while the price of steel has been subject to great fluctuations and stands to-day, due to improvements in manufacture, at relatively low figures, the price of lumber has steadily increased.

Among other things the table shows very plainly that the prices of timber per thousand feet and the price of steel per net ton have approached very closely to each other; that the question of comparative cost is not to-day the feature it was 10 years ago, and that the lower first cost of wood is not very much of an item when compared with the much longer life of steel, its much more satisfactory character and its convenience in manufacture and erection. Beyond doubt the development of the immediate future lies in the rapidly increasing substitution of steel for wood in all classes of ordinary building construction. Of course, in the modern building, some place will be taken by reinforced concrete, which offers numerous advantages for those places in construction for which it is peculiarly suitable. It cannot, however, take the place of steel, and the building laws of our best cities have begun to reflect the prevailing opinion of the engineering profession to the effect that reinforced concrete must be used under conditions of the most careful manufacture and inspection, and that even when so used, its use on high

and plate production of the future. We have to speak, therefore, of modern methods of substructure construction, which offers large place for the substitution of steel for wood.

Round piles of cast iron seem to have been in use as early as 1822, but the invention and application of forms of steel sheet piling has fallen chiefly within the twentieth century. These forms have varied, as the inventors were numerous, and it is difficult to classify satisfactorily all the types of steel sheet piling presented in the documents which have passed through the Patent Office. There are, however, certain outstanding types which will be mentioned. First, is the fabricated beam type. It consists in the main of two standard beams or channels connected together by bolts and separators to form what might be called a box pile. The boxes are connected together in a straight line by standards, beams or channels, the flanges of the single beams forming this connection interlocking with the flanges of the beams or channels forming the box. This type of construction shown in Fig. 1 was first covered by Patent 500,780, granted July 4, 1893, to August Simon of Gnadau, Germany, and the basal ideas of Simon reappeared in the improvements made in Patents 675,736 of June 4, 1901, and 685,447, granted October 29, 1901, to Geo. W. Jackson. It is to be noted that the first steel sheet piling used in the United

States and driven in November, 1901, at Randolph Street Bridge, Chicago, Ill., was of this type, which affords large possibilities in heavy submarine construction, but at the same time is deficient in its ability to furnish light weight sections for ordinary cofferdam and sewer construction. The driving of the Jackson piling demonstrated the necessity of some provision to make the piling water tight, and Jackson and Hogan Patent 758,656 of May 3, 1904, covers this feature of the fabricated beam type steel sheet piling. The further development of this type is to be found in the ideas of Wm. Hunter of Kincardine, Ont., as recorded in Patent 819,067, which consists essentially of a series of steel columns built up of beams and channels and connected together by heavy weight I-beams, which would make a construction extremely difficult to drive and about four or five times as heavy as there is any need for, but which after it has reached its final position in the construction, would have the strength of Gibraltar.

#### The Beam Clip Type.

The excessive weight of the fabricated type of beam piling led inventors to consider the use of beams aligned successively with the top flange of the one against the bottom flange of the other, which I will call the beam clip type. This is represented in Patent 756,618, Fig. 2, granted to L. P. Friestedt of Chicago on April 5, 1904, in which regular structural beams are used to form an interlocked wall. The weight of this section, however, caused Mr. Friestedt to turn his attention to a lighter form of construction based on the same idea. This is covered by Patent 735,489, Fig. 2, dated August 4, 1903, in which the place of beams has been taken by sections either round or square headed and similar to the bullhead rails in use on the railroads of England. Mr. Friestedt's original ideas have stimulated others to action, and James J. Harold of Jersey City, N. J., has taken out Patents 766,185 of August 2, 1904; 807,378 of December 12, 1905, and 820,970 of May 22, 1906, in all of which the same idea occurs of connecting together standard beams assembled edgewise by clips which may be riveted either to beams themselves, or to a plate (Fig. 2). The latest development in the idea of connecting standard beams by clips, either full length or of short pieces, appears in the latest patents taken out by Geo. E. Nye of Chicago, Ill.

#### Interlocking Channel Bar Piling.

The beam clip type of piling, however, in spite of its simplicity and strength, due to its large radius of gyration, suffers from the same criticism already made on the use of beams in piling construction—namely, that due to the weight being beyond absolutely necessary requirements. This consideration has called forth interlocking channel bar piling, which is due to the inventive genius of L. P. Friestedt of Chicago, and the success of which in a large measure has made steel sheet piling one of the indispensable factors of substructure construction. Mr. Friestedt's basal patent is No. 707,837 (Fig. 3), granted August 26, 1902, and is so broad that it covers any combination of channel beams joined edgewise, and having back and face sides thereto positioned alternately with reference to each other and presenting a wall structure of single thickness at all points, and also the combination of zee bars, as applied to such channels to form an interlock. The first of the Friestedt interlocking channel bar piling was driven in October, 1902, in the mine shaft of the Johnson City & Big Muddy Coal & Mining Company, at Johnson City, Ill., and its increasing use has demonstrated the correctness of the ideas on which it was based.

In the endeavor to get away from the weight due to the use of zeos extending the full length of the channels and forming a continuous interlock, the idea has arisen that it might be possible to use short pieces. This has given rise to the clip interlock, which appears in the first instance in patents 734,843 of July 28, 1903, and 739,072 of September 15, 1903, granted to L. P. Friestedt, and covering frictional pieces to wedge the steel piling members closely together, and at the same time to do away with the excess weight. This idea had hardly passed into history before it was followed by patent 808,985 (Fig. 2), granted to Jas. J. Harold of Jersey

City on January 2, 1906, in which a clip interlock is formed by double U-bolt connecting adjoining channels or beams together. A. A. Friestedt has patented a clip successor to the full length interlock, his idea being to use short length zeos simply to guide the channels in driving, and to depend upon the frictional resistance of the channels themselves and earth or water pressure to form a continuous interlock. His ideas have been reflected in patent 860,053 of July 16, 1907 (Fig. 3), and 871,177 of November 19, 1907, granted to Geo. E. Nye of Chicago, in which the clips are formed not of rolled zee bars, but of steel castings approximating the zee bar shape. Experimental tests with the clip form of steel



HENRY WITTEKIND, PATENT 725608



GEO. E. NYE, PATENT 753094

Fig. 4.—Zee Bar and Double Tee Interlocking.

piling have shown that, while it may be admirably suited to light, easy driving in shallow soils, it cannot be depended upon for heavy work through quicksands, boulders or other closely compacted material. As the channels are fastened together only at the top and bottom, the driving of the piling to a refusal will tend to cause the channels to buckle about their middle and open out, thus destroying any effective interlock, and resulting in submarine work in excessive leakage, which cannot be stopped except by expensive means and undue delay in operation. There is an advantage in the clip interlock in having zeos on each piece to hold material in exact alignment.

Wm. G. Fargo of Jackson, Mich., had occasion to use in the construction of the dam for the Grand Rapids-Muskegon Power Company quite a quantity of Friestedt interlocking channel bar piling under difficult conditions of driving. He had fabricated by the Friestedt Company a quantity of piling which differed from that covered by the basal patent in having a single zee bar riveted to each piece instead of two zeos riveted to alternate sections. By this means he succeeded in making each piece of the same strength and found that the most difficult driving could be satisfactorily accomplished. His ideas have been covered by patent 805,533 (Fig. 3), dated November 28, 1905.

The success of Friestedt interlocking channel bar piling has incited James J. Harold to work up a wooden composite type of piling based on the use of standard channels in which the zee bars are omitted and the channels held together by short bars, overlapping the interlocking flanges and bolted to wooden timbers, making a solid steel and wood wall. This form of composite piling is covered by Patents 808,838 (Fig. 3) of January 2, 1906, and 820,304 of March 8, 1906.

Geo. E. Nye, in Patents 832,407 of October 2, 1906, 850,043 and 850,044 of April 9, 1907, has developed what might be called interlocking double channel bar piling.

#### Other Interlocking Forms.

The success of the interlocking channel bar piling called forth interlocking zee bar piling, represented in Patent 725,608 (Fig. 4), granted to Henry Wittekind of Chicago on April 14, 1903. The Wittekind piling does not seem to have received any particular attention from the engineering profession and is rather too complicated for ordinary uses.

Geo. E. Nye has patented what might be called the double tee interlock form of steel piling, which is represented in Patents 753,094 of February 23, 1904 (Fig. 4); 778,601 of December 27, 1904, and 816,994 of April 3, 1906, all of which are owned by L. P. Friestedt and which require the manufacture of special rolled shapes before any fabrication can be done.

Structural mills also roll plates which can be fabri-



cated into various forms, and we have the next form of steel piling, which may be called the interlocking trough plate type, and consists essentially of the use of trough plates or similar forms in steel piling construction. Any form of this type of piling would give a large radius of gyration and a corresponding high strength. They are, however, difficult to fabricate and are based on a high priced class of material to begin with. The first patent based on the use of trough plates (Fig. 5) was granted to Frank N. Kneas of Chicago, No. 744,361 of November 17, 1903. This was followed by Patent 751,469, February 9, 1904, granted to Walter L. Cowles and Jas. N. Hatch of Chicago, Ill. The ideas of these inventions have been extended and improved upon in Patent 801,946 of October 17, 1905, granted to Julius R. Wemlinger of New York. No form of interlocking trough plate piling has yet been fabricated or driven, and the Wemlinger piling in its latest form calls for very expensive rolling processes to produce the necessary plain sections.

The use of plates for sheet piling has been a fertile idea in the minds of inventors. Geo. W. Jackson's patent, 697,943 of April 15, 1902 (Fig. 5), covers what might be called the box interlock, in which the ends of the plate are bent around into a box form to make an interlock. Patent 824,513 of June 26, 1906 (Fig. 5), granted to R. H. Stevens, Homestead Steel Works, represents what may be called the scroll interlock, in which the complete pile has an end section like the scroll of the engraver, with the exception that one end is of smaller radius of curvature than the other. Lester R. Gifford and R. V. Sage of Westmont, Pa., took out Patents 766,131, 766,132 and 766,147, all dated November 29, 1904, on corrugated interlock, in which the sheets themselves are corrugated as in roofing and the interlock is formed by a special rolled shape fitting closely over the apex of adjoining sheets.

#### Spring Lock Steel Piling.

Steel plate piling, however, finds probably its best representation in the spring lock steel piling, on which Patents 842,120 of June 22, 1907, 843,307 of February 5, 1907, and 863,886 (Fig. 6) of August 20, 1907, were granted to Frank W. Skinner, of New York. The essential idea is to provide adjoining plates with their ends

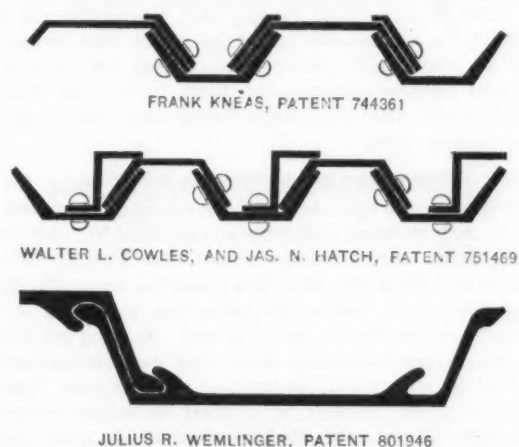


Fig. 5.—Trough Plate Interlocking.

curved to slightly different radii which in driving compels the sheets to lock closely to each other. The same idea is represented in Patent 838,152 (Fig. 6) of December 11, 1906, granted to John R. Williams, of East Orange, N. J. So far as information goes, no form of plate piling has yet been driven in the United States. The great difficulty with it is that there is required in connection with the piling itself some form of mechanical device in the way of a follower to go down with the sheets, and to hold them in position until bracing can be done, and it is very apparent that the use of these followers, as is necessary with each sheet, calls for not only increased expenditure, but delay in the driving itself. A very interesting form of plate piling is known as the camber plate piling (Fig. 6), which has had considerable use in Germany. It was invented by F. Lang, of Hamburg, and it has been employed at Hanover for

the extensive cofferdam foundation of the Provincial Revenue Offices, and consists of bending vertical edges in specially constructed machines to form a labyrinth U-joint. The plates themselves are bent to a radius of 27 in., which gives a camber of  $2\frac{3}{4}$  in. in each sheet. This form seems too cumbersome to meet that simplicity and economy which is required by the engineering and contracting ideals of America.

#### The First Rolled Section.

This exhausts the consideration of the fabricated forms of steel piling. It is apparent to everyone that the ideal steel piling should be complete in itself; that it should be simple; that it should interlock perfectly, and that each adjoining piece should have the same theoretical strength. Consequently the ideal form of steel piling should be a rolled section and patents have been granted along this line of various value. The first United States patent covering a rolled section was 103,028 (Fig. 7), dated May 17, 1870, and granted to Lewis Dodge, of Chicago, for improvements in the construction of tunnels and dams. This patent shows two forms, the ball and socket form, with head of one piece fitting into the socket of the other, and the rectangular form in which the connections were made by dovetailing. It is also interesting to note that Mr. Dodge contemplated the use of his section for tunnel lining rather than for sheet piling purposes, an indication of what has often happened in the use of new material which has advantages, that those who built, built better than they knew, and that really valuable ideas are developed and extended and improved upon and used for different purposes by the generations that succeed their originators.

#### Novel Ideas in Roll Turning.

Practically 65 per cent. of the piling sold to-day is covered by Patent 639,884 (Fig. 7), granted to Samuel K. Behrend, of Washington, on December 26, 1899, and is known commercially as United States Steel sheet piling. This piling incorporated the idea advanced by Lewis Dodge, but improved upon it by making the section more ideal and by the introduction of packing strips to provide for that water tightness which is necessary in submarine construction. The manufacture of this form of steel piling has also brought forth novel ideas in roll turning. Walter C. Harder was granted on October 4, 1904, Patent 771,426 (Fig. 7), in which the essential idea was to form an interlocking member by turning over a beam flange so as to form an interlocking curve. Immediately on the issuance of this patent, its infringement with the Behrend patent was noted. The matter was taken into court and in the court room it was testified that steel piling covered by the Behrend patent could not be rolled by any method known to the art. In spite of this, the Behrend piling was rolled successfully on December 23, 1904, and it was rolled by the special method of rolling invented by Edwin E. Slick, and covered by Patent 852,984, granted May 7, 1907. It is this Slick method of rolling which has made possible the development and success of the United States Steel sheet piling.

#### Vanderkloot Piling.

This success has called forth competition, and Matthias R. Vanderkloot of Chicago, has taken out patents 763,526 of June 28, 1904, and 786,329 (Fig. 7) of April 4, 1905, covering a form of rolled section in which an interlock is formed by bending over into hooks the flanges of what starts through the mill as an unsymmetrical beam section. The form of the Vanderkloot piling as actually rolled represents quite a departure from that shown in his patent, which is only an illustration of the fact that successful invention must go hand in hand with practical rolling mill experience.

Patent 778,354 of December 27, 1904, granted to Rudolph Dobry (Fig. 7), represents a form of piling in which the interlock is made by unique dovetailing. It is needless to say that this form of piling is out of the question from a rolling mill standpoint. The same criticism applies to George E. Nye's Patent 782,872, February 21, 1905, also the very ingenious but far fetched idea represented in Patent 826,801, July 24, 1906, granted to C. H. Quimby, Jr., of Pittsburgh; also to another unique dovetailed form of steel piling covered by Patent 829,596,



granted to J. J. Noltz of Canal Dover, Ohio, August 28, 1906, all shown in Fig. 7. The Vanderkloot ideas have been followed by Truman Hill of Chicago, in Patent 829,399 of August 28, 1906, in which the interlock is similar to the construction of the modern coupler attachment of standard freight cars.

We are not dealing here especially with composite wooden piling, but reference should be made in this connection to Patent 863,837 (Fig. 7) of August 20, 1907, granted to Francis R. Dravo of Sewickley, Pa., which represents the ideas of a substructure contractor who has had large experience in driving steel piling himself. It is based on the use of two special rolled steel shapes and wooden fillers in which interlocking means are provided and ample attention paid to the requirements of watertightness.

#### Uses of Steel Piling.

Steel sheet piling in general can be used for any purpose for which wooden sheet piling can be used, and its first and most common use is in the construction of cofferdams for building bridges. It is for this purpose that

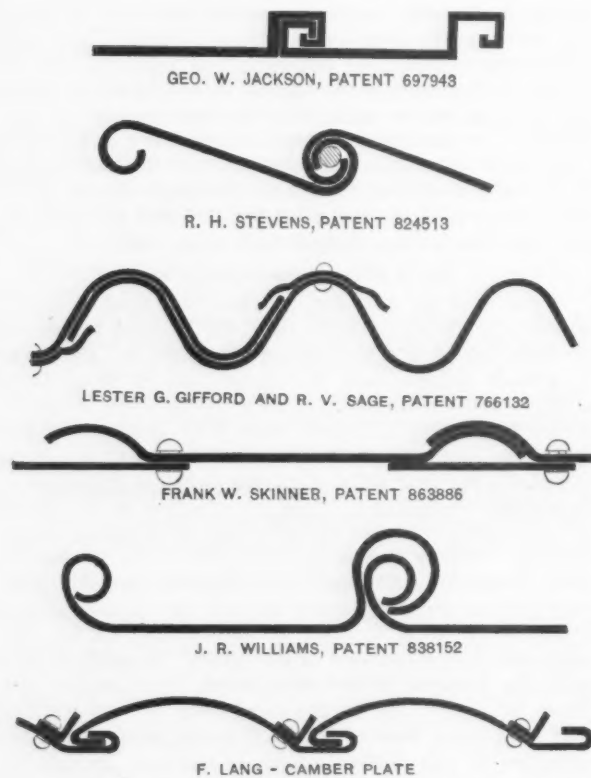


Fig. 6.—Box, Scroll, Corrugated, Spring and Camber Plate Interlocking.

the largest sales of steel sheet piling have been made. Its repeated use in such work has called forth entire satisfaction from its users, its large advantage and great economy consisting in the ease with which it can be driven and the ability to withdraw and reuse over and over again without serious injury. The cofferdam for the new bridge now being built by the Chicago & Northwestern Railroad across the Mississippi River at Clinton, Iowa, for example, has required about 1166 tons of 40-lb. United States steel sheet piling. There are nine cofferdams to be constructed and steel piling will be used three times. The piling is being driven with a 3200-lb. drop hammer falling approximately 15 ft. Packing strips were not used. There were leaks present in the piling, but not of sufficient size to interrupt the work. In order to rush the work on this job, the railroad used a double wall of steel piling with puddle. They admit, however, that with a single wall of piling, using the wooden strips, they would have had practically a watertight dam. Six to 30 piles were driven each working day, at a cost of 18 cents per lineal foot of structure.

The National Tube Company, in carrying out improvements at its Pennsylvania Department, this city, constructed in 1907 a concrete river wall 1660 ft. long.

One end of this wall is entirely in the Monongahela River and the wall runs along the river bank in a direction inclined thereto, so that the other end is in dry ground, the space between the wall and the bank being eventually filled in. This wall was constructed in four installations of three cofferdams each, the piling being driven with a 3600-lb. drop hammer, pulled and used over again, sufficient piling being purchased for one installation only. Thirty-five pound United States Steel sheet piling was used without caulking beyond the silt and mud found in the river bottom. There were no leaks present of a size sufficient to interrupt the work, which was entirely satisfactory in every respect.

The Marsh Bridge Company has recently built a cofferdam for a bridge pier at Peoria, Ill., using 130 tons of Friestedt 15-in. 38-lb. This material was bought second-hand from the Cullen-Friestedt Company, who had used it for two cofferdams previously. The Marsh Bridge Company have driven it fully three times, making five times in all that the same set of steel piling has been used. Bayne & Hewitt, contractors, Minneapolis, Minn., used a 15-in. 38-lb. Friestedt piling in cofferdams for Government bridge at Rock Island. They installed the same lot of piling four times, driving it down through 17 ft. of sand, gravel and hardpan. No method of caulking was used, and yet the leakage interfered at no time with the progress of the work, and the cost of driving amounted to only 14½ cents per lineal foot of substructure.

Steel piling in use has met, of course, with all sorts of obstructions. It has successfully penetrated in one case three 16-in. square timbers without any difficulty; but the most difficult driving of which we have record was that encountered by the Hoover & Kinnear Company, at Wheeling, W. Va., in constructing a cofferdam for the Baltimore & Ohio Railroad bridge. Here the material encountered all kinds of difficulties. It was even attempted to drive the stuff through a locomotive axle which happened to be in the debris on the river bank, and while the piling was seriously bent and twisted, and re-drawing was extremely difficult, it was finally accomplished, and the second installation proceeded with. In this connection the experience of the Norfolk & Western Railway is instructive. In changing the alignment of their bridge over Paint Creek, near Chillicothe, it was necessary to rebuild the structure which had stood for about 20 years, and absolute comparison between wood and steel became possible, the piers built with wooden cofferdams on the old bridge being only about 250 ft. from the new ones.

#### Relative Cost of Steel and Wood.

Twenty years ago the contract cost per structure of several certain wood cofferdams was \$452.50. At present, the same wood structure would cost \$638.22. United States Steel piling was used five times for five cofferdams within 300 ft. of those of 20 years ago, and came out of the work practically as good as new. Making no allowance for salvage or scrap value, the cost per structure was \$505.09, with piling on hand as good as new. Charge depreciation, on account of a final or scrap value, of from 30 to 35 per cent., and in view of the good condition of piling after using five times, it is hardly reasonable to charge off 10 per cent. of the total cost of piling against each of five cofferdams, 41 per cent. in all. But even on that basis, the cost per structure would be \$289.95, and the piling would be on hand as good as new, possessing a salvage value of 59 per cent., equal to \$1075.68, or a scrap value of, say, 30 per cent., equal to \$546.50. Credit a scrap value, \$546.50, pro rata to five cofferdams charged at \$505.09 each, and the net cost per structure would be \$395.79; or credit a salvage value \$1076.68 pro rata to five cofferdams charged at \$505.09 each, and the net cost per structure would be \$289.95. The saving on steel piling on any calculation is apparent.

#### Retaining Walls, Sewer and Trench Work.

Steel sheet piling has also been used extensively in the construction of retaining walls, sewer and trench work and foundations of all kinds. It has been used by the United States Reclamation Service in the driving of curtain walls to resist underground percolation of water

and has in this way effected a great saving in the reduction of excavations otherwise necessary and in the time consumed in the construction. Along the same lines is its use by the Engineering Department of the United States Government in the protection of the wooden dams in the Allegheny River. During the freshets of the early part of 1907 the wooden dams became undermined and it was also necessary to use dynamite to dislodge the ice gorges which had accumulated beyond them. Also the banks at Springdale, with the buildings thereon erected, were eroded and swept away by the force of the current. In reconstruction of these dams, and in order to economize where possible, the United States Government decided to drive 40-ft. United States steel piling along the entire upstream face of the dams and along the wing walls. This will most effectively prevent any underscouring action

[The concluding portion of Mr. Woodworth's paper is devoted to the developments of recent years in the use of steel in coal mining. That this is not to be looked upon as experimental, the author argues, is shown by the fact that in the past 12 or 15 years in the mines of the Susquehanna Coal Company steel timbered gangway supports have been in use in deep parts of the mines exposed to constant contact with mine water, and without signs of failure or corrosion. Nature builds the strongest sections in the form of hollow cylinders, but round sections for mine timbers are not simple, and to make connection with them is difficult and intricate. As close an approximation to circular form as is possible under present conditions is the H section, which has a large radius of gyration and the most economical distribution of material in comparison with its weight. The first manu-

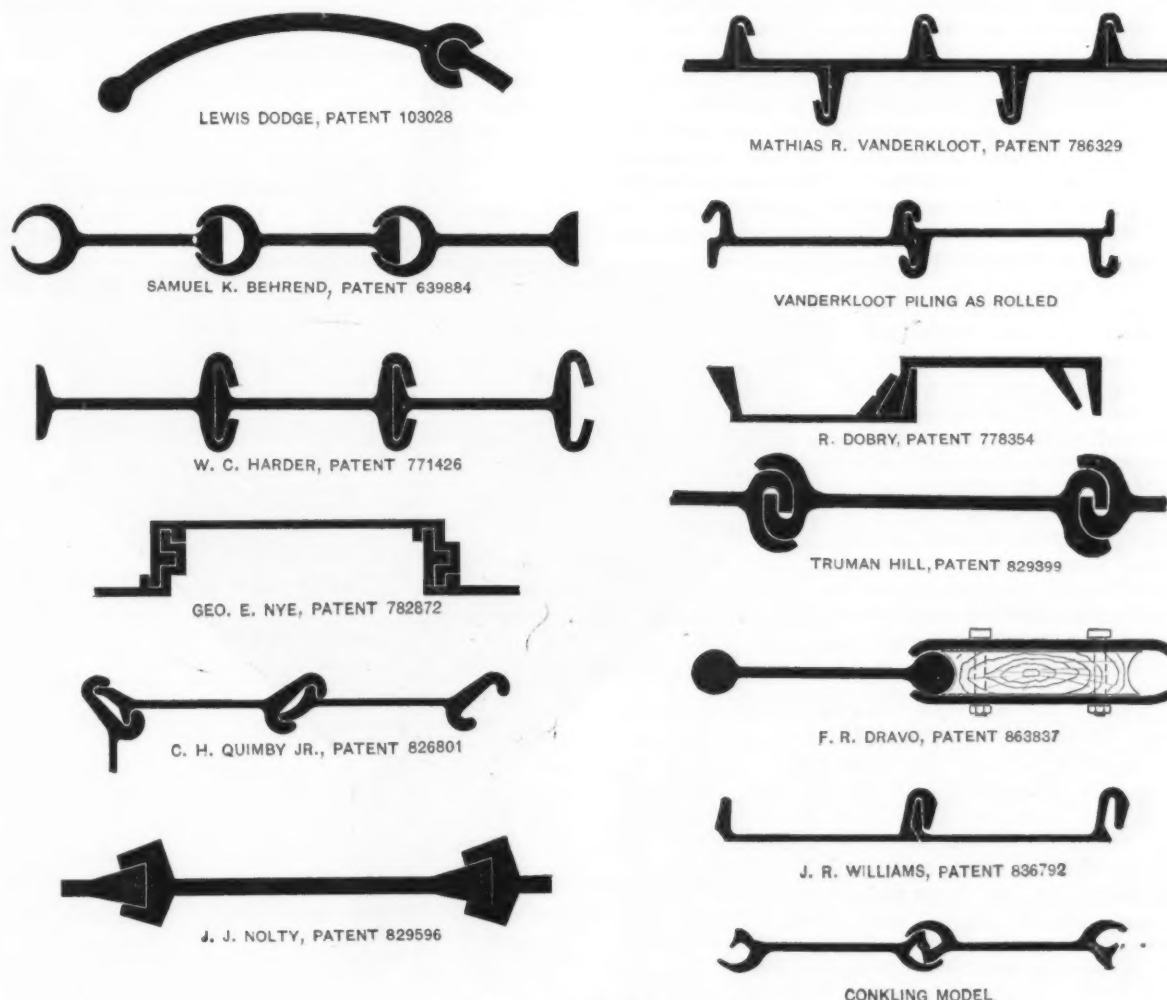


Fig. 7.—Special Rolled Sections.

of the water and will make the structure practically perfect.

In line with this use in streams to prevent underscour is its use in the construction of dams for hydro-electric projects. The dam at Grand Rapids-Muskegon Power Company, Grand Rapids, Mich., is an illustration of what can be done in this direction, and the same company which years ago constructed that dam built this year a dam for the Berrien Springs Power Company, at Berrien Springs, Mich. Under previous methods of operation in building a dam across a valley, it would have been necessary to excavate far below the surface of the ground and to construct a masonry or concrete wall as a core to prevent seepage of water below the dam itself. All the expense and delay incurred by this practice has been avoided by the use of steel sheet piling, which is driven down to the surface of the ground and the masonry dam built above it.

Along this same line also is the intended use by the United States Government of steel sheet piling in the construction of a sea wall at Fort St. Phillip. Here steel piling will be driven and the tops capped with concrete to form the outline of the wall itself. About 1450 tons will be used in this construction.

facturer to furnish these in the United States was the Carnegie Steel Company, and its 4, 5, 6 and 8 in. sections, all of which are now successfully rolled, have been designed especially for use in coal mining operations. The 4-in. section weighs 13.6 lb. per lineal foot, the 5-in. 18.7 lb., the 6-in. 23.8 lb. and the 8-in. 34.6 lb., which gives a range of sizes sufficient to take care of all of the ordinary requirements of coal mining operations. When the H sections were placed on the market their usefulness in other directions became plainly apparent. They will take their place with the ordinary structural shapes, heretofore rolled, in the construction of light columns for all sorts of purposes, and the present range of sizes is sufficient to construct an ordinary five or six story building. They will also be used for transmission line supports and for other purposes for which ordinary structural material, and, indeed, timber, are now employed.]

The Cape to Cairo Railroad in Africa only requires the completion of 700 miles to enable travelers to make a connected journey by rail, lake and river from Cairo to Cape Town. Negotiations are progressing for the construction of this link.

## The Vibracone Separator.

A vibrating conical screen separator, hence the name "Vibracone," invented by C. J. Reilly, superintendent of the Sandusky Portland Cement Company, and made by the Stephens-Adamson Mfg. Company, Aurora, Ill., is illustrated by the sectional view presented herewith. It is adapted for screening any material, wet or dry, such as cement, lime, clay, ores, sand, fine coal, carbon, graphite, phosphate, guano, fertilizers, chemicals, stone, salt, &c., where a uniform separation is required of material capable of passing screens of from 3 to 200 meshes per inch. Briefly, the essential features are a revolving seamless steel disk distributor, a cone shaped screen and a vibrating mechanism.

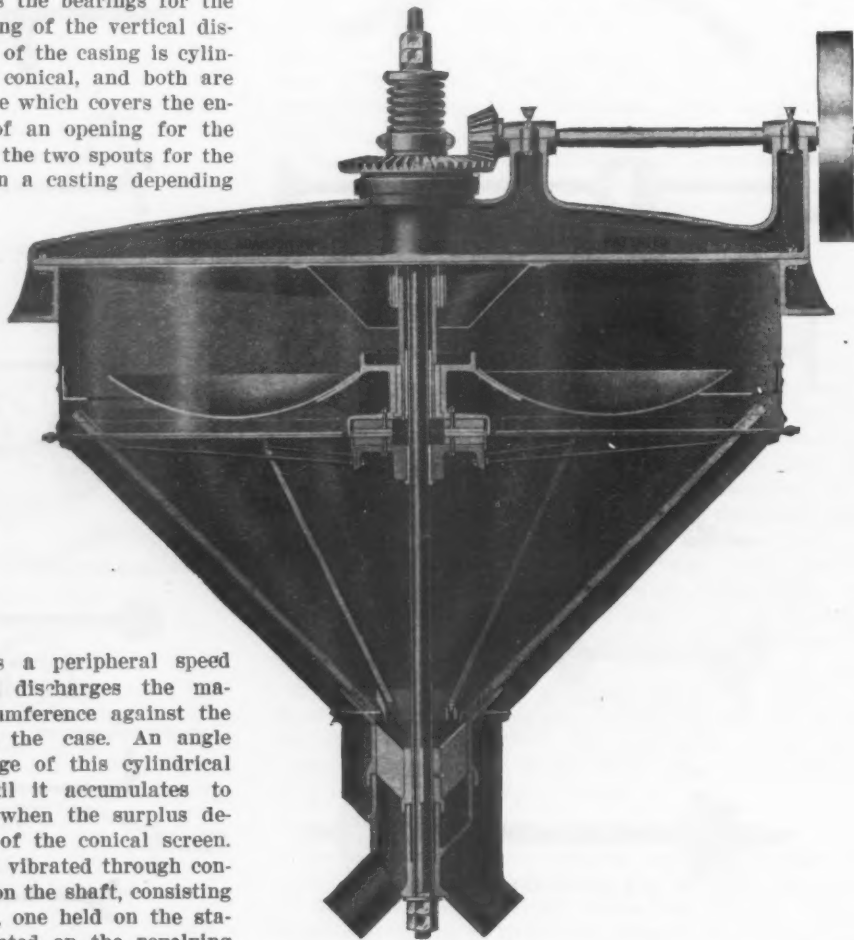
The whole machine is contained in a top shaped casing adapted to be suspended from a beam like casting which spans the top and supports the bearings for the driving shaft and the upper bearing of the vertical distributor shaft. The upper section of the casing is cylindrical in form, the lower section conical, and both are made of 3-16 in. steel. A top plate which covers the entire surface with the exception of an opening for the feed hopper is of No. 10 steel, and the two spouts for the tailings and fines are combined in a casting depending from the lower end of the cone. It will be seen that the apparatus is substantially inclosed so that it is practically impossible for dust to escape during its operation.

It is usual to feed the material through one-half of the feeding hopper, which is of 3-16 in. steel, 13½ in. in diameter at the bottom. The other half has a loose cover which can be removed to inspect the material being fed to the machine. This material falls upon the distributor, which is dished, as shown, and is 3-16 in. thick and 6 ft. in diameter. This, revolving at about 33 1-3 rev. per min., has a peripheral speed of about 625 ft. per minute, and discharges the material uniformly around its circumference against the sides of the cylindrical part of the case. An angle shelf secured near the lower edge of this cylindrical section retains the material until it accumulates to the angle where slipping occurs, when the surplus descends gently into the large end of the conical screen. The screen does not revolve, but is vibrated through connections to a mechanism mounted on the shaft, consisting of two chilled ratchet faced disks, one held on the stationary shaft and the other mounted on the revolving sleeve beneath the distributor. The vertical vibration thus produced is at the rate of 600 impacts per minute, and agitates the screen sufficiently to cause the material to slide down the conical screen without clogging and insure full efficiency of the screening surface. The amplitude of the vibration may be regulated from 1-64 to ½ in. by adjusting the ratchet faced disks from or toward one another by means of a nut at the lower end of the vertical shaft, this shaft being spring supported at the top, as shown. Adjusting this shaft has no effect on the engagement of the bevel gears, since the driven bevel gear is separately supported on a sleeve. The fines passing through the screen are collected at the bottom of the conical receptacle and pass through the right hand spout, while the tailings, continuing over the entire surface of the screen, fall into the central collecting chamber leading to the left hand spout.

The driving shaft is 1 15-16 in. in diameter and ordinarily runs at 100 rev. per min., the bevel gears being in the ratio of 1 to 3. The speed of the separator is claimed to be less than one-half that of other vibrating screens. The screening surface consists of eight triangular sections of steel or brass wire cloth set at an angle of 45 degrees. These sections are interchangeable, so that different meshes may be substituted when it is desired to

get different sizes of fines. They are attached to the steel sash bars by eccentric clips, no bolts or screws being used, and can be readily removed and replaced. On account of the even distribution of material to the screening surface the wear on the wire cloth is uniform and it is said more than double the usual life is secured from screening cloth. In the outer shell there is a removable door through which the screen sections can be removed or replaced. While normally the screen surface does not revolve on the vertical shaft it can be turned to bring the sections successively opposite the opening in the outer case to allow their removal or inspection.

Both discharge spouts are provided with covered hand holes so that inspection of the fines or tailings can be made direct from the machine, and any foreign substance, such as waste or accumulation of like character, can be removed. The spouts are each 6 in. outside di-



The Vibracone Separator Made by the Stephens-Adamson Mfg. Company, Aurora, Ill.

ameter. All joints of the steel shell casing are made tight, so that dust cannot be scattered. The entire driving mechanism which operates the distributor and vibrator is carried on ball bearings. The driving quill is of steel and is babbitted in its bearing surfaces, and is provided with means for lubricating. The total height of the separator is 8 ft. 9 in., the diameter 8 ft. 3 in. and the weight approximately 3000 lb. One-half horsepower is sufficient to operate the separator at its full capacity.

The purpose of any separator is to produce the largest percentage of sized product with the least loss of fines in the tailings, and it is reported that in actual practice the Vibracone separator has screened 10 tons of Portland cement clinker per hour, 99 per cent. of which would pass a 20-mesh screen, with not to exceed 10 per cent. of fines in the tailings. This test was made in connection with a mill used for preliminary grinding which practically reduced only one-third of the material to the proper fineness at one operation, which means that 30 tons per hour of material passed through the machine in order to give the 10 tons per hour of fines. This, however, did not indicate the full capacity of the machine, as



it was impossible to feed more material to the grinding mill.

The screen cloth used is about twice the size of the product desired. For instance, in screening material all of which will pass a 20-mesh screen, a 10-mesh No. 20 wire screen is used, and for 100-mesh product a 50-mesh No. 32 wire screen. An advantage results from using as heavy wire as possible, since it insures longer life to the screening surface and contributes to rigidity of the screening plates.

On account of its form the Vibracone separator has a much greater area of live screening surface for the space occupied than is possible in any other type. The screen is 6 ft. in diameter at the top, thus giving about 19 ft. of lineal screening surface at the point where the material is first received from the distributor. This is naturally where the greatest amount of surface is required.

In some classes of very fine screening it is desirable to place a coarse scalping screen directly over the fine screen, to protect the latter from the heavy or coarse pieces that might be mixed in with the fine material. In screening fine sand containing a percentage of coarse gravel stones it is possible with a scalping screen to deliver the coarse material at once through the tailing spout while the balance passes on to the fine screen, the fines passing on through the fine screen and the smaller tailings over the fine screen to the tailings spout. Where conditions require the separator may be used as a double unit, placing one machine directly over the other.

At the company's plant there is a Vibracone separator equipped with a complete complement of screening plates of various meshes, in which the company is prepared to make tests for those desiring to know what may be accomplished in the separator with their materials.

### The American Radiator Company's Report.

The ninth annual report of the American Radiator Company furnishes the following comparative financial showing for the fiscal year ending January 31:

	January 31, 1907.	January 31, 1908.
<i>Assets.</i>		
Real estate, plants, machinery, patents, &c.....	\$7,976,641.19	\$8,269,290.31
Additions during year.....	392,649.12	361,994.32
Totals.....	\$8,369,290.31	\$8,631,284.63
Less depreciation.....	100,000.00	100,000.00
Net.....	\$8,269,290.31	\$8,531,284.63
Cash .....	\$308,541.43	\$475,178.26
Notes receivable.....	15,985.63	11,217.32
Accounts receivable.....	2,535,568.27	1,768,618.66
Raw material, supplies and finished products.....	1,370,331.48	1,506,432.40
Total quick assets.....	\$4,230,426.81	\$3,761,446.64
Totals.....	\$12,499,717.12	\$12,292,731.27
<i>Liabilities.</i>		
Preferred stock.....	\$3,000,000.00	\$3,000,000.00
Common stock.....	5,000,000.00	5,000,000.00
Accounts and bills payable.....	1,115,645.18	518,934.91
Totals.....	\$9,115,645.18	\$8,518,934.91
Balance (surplus).....	\$3,384,071.94	\$3,773,796.36
Totals.....	\$12,499,717.12	\$12,292,731.27

The net profits for the years above given were as follows:

	January 31, 1907.	January 31, 1908.
Net profits.....	\$864,281.29	\$899,724.42
Less dividends—Preferred stock....	210,000.00	210,000.00
Common stock.....	200,000.00	300,000.00
Totals.....	\$410,000.00	\$510,000.00
Balance .....	\$454,281.29	\$389,724.42

In his accompanying statement to the stockholders Clarence M. Woolley, president of the company, explains that in the first nine months of the fiscal year, when universal prosperity prevailed, the company's sales and profits were increased, but that in the last three months these sales and profits did not keep pace with those noted in the earlier months of the year. Nevertheless, the net profits were the largest in the history of the company. The net quick assets or working capital is now in excess of the total amount of preferred stock issued. Continuing, he says:

The company has steadily enlarged its producing capacity, and, following conservative price policies, the business has gradually increased, until the volume annually transacted exceeds its capitalization. This enables the company advantageously to transact the larger volume of business on a smaller percentage of profit, rendering available to a greater number of people with moderate means its sanitary and home improving products.

The inventories of raw materials and manufactured products were adjusted at the end of the year on the basis of actual market values by the utilization of funds reserved for that purpose. This permits the company to enter the new fiscal year untrammelled by a burden inherited from the preceding year, and its operations can be established upon legitimate conditions, made possible by the elimination of artificial valuations.

The last fiscal year was marked by signal progress, not alone in improving its manufacturing facilities, but in realizing refinements in both the manufacturing and the selling organizations, which constantly express a higher degree of co-operative efficiency.

The growth of the European companies continues at a gratifying rate. Each has transacted a larger volume of business than during the preceding year, accompanied by a corresponding increase in earnings. The profits realized by the European companies have been utilized for increases in producing capacity and working capital. This has rendered it advisable not to declare dividends, and their profits, therefore, have not been included in the balance sheet of the company.

The plant in England is thoroughly organized and in successful operation. The plant in Germany produced a larger volume of product than ever before, and the outlook for continued growth is favorable. The first plant constructed in France was outgrown by the increased demands placed upon it, necessitating the building of a new and larger plant, which will be in operation in the near future. The climatic conditions in Europe render the use of these products quite as essential for comfort and economy as in our own country, and we are more than ever encouraged by the outlook for the continued development of this line of industry abroad.

### Canadian Furnace Notes.

TORONTO, March 7, 1908.—The furnace of the Atikokan Iron Company, which has been out of blast for some time, is expected to be blown in before the spring is far advanced and to be kept in operation throughout the year. It is said that the lateness of the company's entry into the field of production last year put it at some disadvantage for the sale of its output, buyers having mostly covered their wants for some time ahead before the company got into a position to offer product. The money stringency toward the end of the year was likewise adverse to business, and it was thought better to close down than to continue piling up output. During the shut down some changes are being made in the plant.

Notice has been given to the employees of the Deseronto Iron Works that the plant will be put out of operation for a time. A shortage of charcoal, which is the fuel used in the manufacture of the Deseronto pig iron, is given as the reason for the stoppage.

An agreement has been entered into by the Canadian Steel Rolling Mills, Ltd., and the municipal corporation of Campbellford, Ontario, wherein the company undertakes to erect and operate in the town a plant for the manufacture of steel plates and sheets. On its part, the town grants a 5-acre site free, exempts the plant for 10 years from all taxation save that on school and local improvement account, and engages to supply the company with 1500 electric horsepower at \$10 per horsepower per year. The works are to cost \$60,000, to employ not less than 100 hands for 11 months each year, and are to be ready for operation by next January. C. A. C. J.

The annual meeting and dinner of the Manufacturers' Association of Pittsburgh will be held in the Hotel Duquesne in that city on the evening of March 13. W. D. Averman is secretary.

## The Union Steel Annealing Box.

A patent has recently been granted to the Union Steel Casting Company, Pittsburgh, Pa., on a new form of annealing box. It is a one-piece steel casting, the best material available for the purpose on account of its ability to resist the intense, long continued heat to which annealing boxes are subjected, and is specially designed to counteract what has always been the most serious objection to such boxes, the tendency of the roof to sag and the sides to distort. Of these difficulties the first is the worst, and is largely overcome by what is practically

for annealing sheet steel, after it had been fired for 207 times. A number of these boxes are now in use in various sheet and tin plate mills in different parts of the country, and are reported to be giving excellent satisfaction.

The boxes are handled in the usual way. Generally two tracks are provided to accommodate round steel balls about 8 in. in diameter, and are laid in the furnace and extend out into the shop. On these tracks the 8-in. balls are placed, and on the balls a heavy steel bottom having grooves for the balls on the under side and a flange around the upper edges. This flanged bottom is 2 or 3 in. larger inside all around than the outside dimensions of

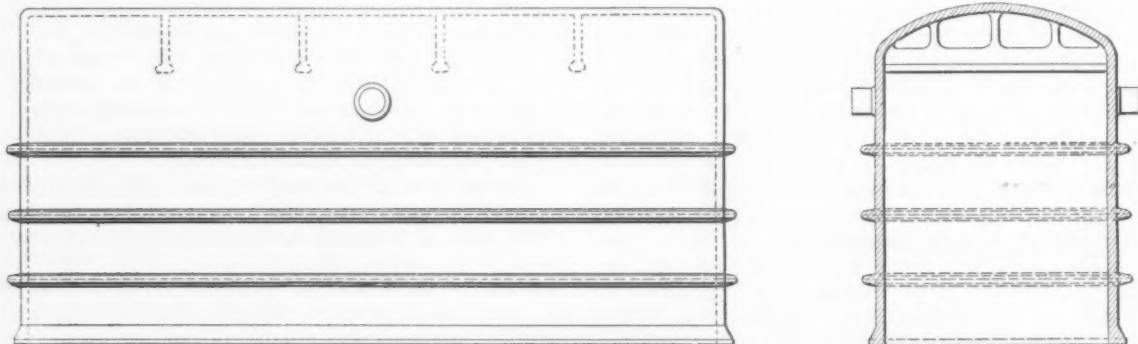


Fig. 1.—Side Elevation and Cross Section of the New Form of Steel Annealing Box Made by the Union Steel Casting Company, Pittsburgh, Pa.



Fig. 2.—One of the Union Annealing Boxes After It Had Been Fired 207 Times.

a truss construction under the roof on the inside of the box. The form of this is clearly shown in the side and end views of a box given in Fig. 1. Tie members extend across between the upper parts of the side walls near the bases of the roof arch, which has the effect of preventing the outward bulging of the sides, and from these tie rods vertical struts project to support the arch. Altogether these structural parts form what are practically webs with openings in them, and have the combined effects of preventing the sagging of the roof and the bulging of the side walls. There are also horizontal flanges cast on the outside of the box all around which materially stiffen the flat surfaces. The whole is cast in a single one-piece casting and has the usual trunnions near the center of the box for lifting it.

Fig. 2 shows one of these boxes which has been used

the box. In the center of the bottom the sheet steel is stacked as high as the box will accommodate, and then the box is lowered over the top of the pile, so that it does not touch the sheets. The space between the lower edge of the box and the bottom flange is filled with sand to exclude air from the box, the object being to anneal the sheets without their coming into contact with air and so prevent oxidation. The bottom, with the sheets and box placed upon it, is then rolled into the furnace on the balls, the door of the furnace closed and heat applied from a gas, oil, coal or coke fire. The heat comes in contact with the outside of the box, making it very hot, and through conduction and radiation is transmitted to the inside, heating the sheets to the proper temperature.

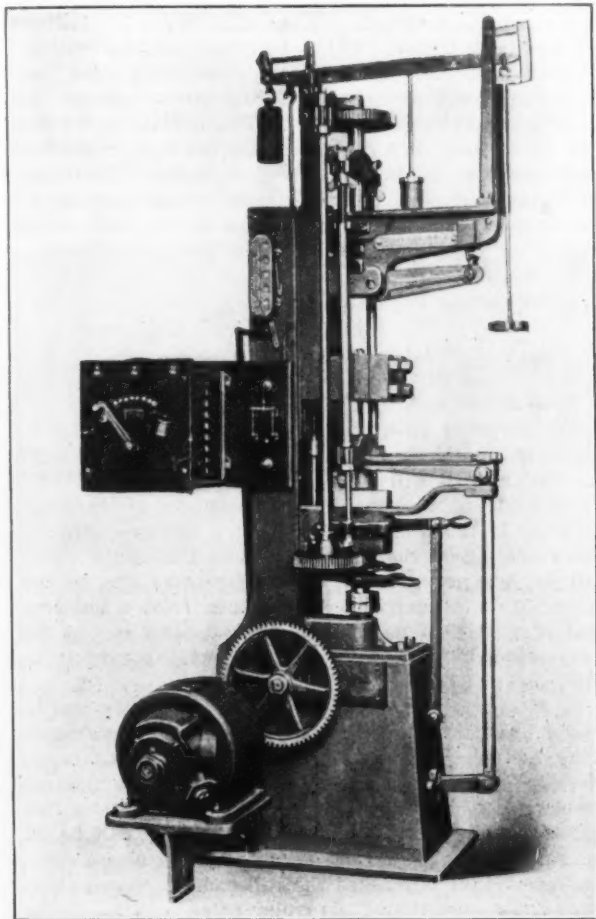
The heat necessary on the outside of the box to raise



the temperature of the sheets inside to the required point must be very severe. An ordinary box soon becomes deformed, the sides bulging and the roof caving in, which may either produce cracks, or, if it be sufficiently tough to prevent cracks, the box soon so changes shape that it will not pass over the pile of sheets or fit evenly on the bottom. By means of the inside trusses the roof is prevented from sagging and the sides from bulging, so that no cracks or undue distortion occur, greatly prolonging the life of the box. Tests made by the Union Steel Casting Company of these boxes indicate that their life is about double that of boxes of ordinary construction. They are made in various sizes.

### An Olsen Motor-Driven Vibratory Testing Machine.

A vibratory and endurance testing machine, designed for testing staybolt material under conditions simulating



A Special Staybolt Testing Machine Built by Tinius Olsen & Co., Philadelphia, Pa.

those of actual service, is shown in the illustration. It was built by Tinius Olsen & Co., Philadelphia, Pa., and is equipped with a type R Westinghouse motor.

Staybolts as used in locomotives are subjected to severe strains due to vibrations and temperature effects, consequently a tensile test alone is not sufficient to determine their ability to perform the function required of them. Formerly tests were made by vibrating the specimen with an oscillating motion only, and the results thus obtained were not entirely reliable, because the strains did not closely enough approximate the conditions met with in use. The Olsen machine makes the test complete by subjecting the specimen to a rotary vibratory motion while under a tensile load.

This machine will test staybolts up to  $1\frac{1}{4}$  in. in diameter, and it grips the threaded bar so that no preparation of the test piece is necessary. The specimen is held firmly in the frame of the machine at one end and the other is clamped in a ball, around which a bearing is rotated eccentrically to produce the desired strain. A total ec-

centricity of  $\frac{3}{8}$  in. may be placed on a specimen and is indicated on a scale, while a tensile load is applied reaching 4000 lb. as a maximum. The revolutions or number of vibrations necessary to cause rupture are shown by a counter. Specimens 5 to 8 in. long from the point of application of eccentricity to the fixed support may be tested.

In addition to this test for a staybolt, the illustration shows an attachment by which the ordinary pendulum motion may be transmitted to the specimen when required. An attachment may also be obtained with this machine by which an initial fiber stress may be placed on the specimen while it is thus vibrated, if that should be preferable to subjecting the specimen to a known eccentricity. The machine as shown by the engraving is exceedingly compact. Its direct connection to a Westinghouse type R motor affords a form of drive that is well suited to its requirements. The motor may be supplied from a lighting circuit and run day and night throughout the test without special attention, which is cheaper and more convenient than driving from a line shaft.

### The Sheffield Coal & Iron Company's Reorganization.

The Reorganization Committee of the Sheffield Coal & Iron Company, Sheffield, Ala., consisting of E. C. Converse, James Gayley, Isaac L. Elwood, William M. Douglass and C. William Funk, has sent out to the bondholders and stockholders of the company their proposed plan. This provides for decreasing considerably the present fixed charges by reducing the bonded indebtedness and interest charge and by authorizing the issue of preferred stock to take the place of about one-half of the present indebtedness. It is proposed that the holders of the Sheffield Coal, Iron & Steel Company bonds, which are a lien only upon the blast furnaces, give up that lien and receive in exchange 45 per cent. of the face amount of their bonds in new bonds secured by a first lien upon the entire property of the new company and 45 per cent. in new preferred stock, coming next behind the bond issue of about half the amount now upon the properties. The Sheffield Coal, Iron & Steel Company is the original company, and about 56 per cent. of its bonds are held by a trustee for the further security of the bond issue of the Sheffield Coal & Iron Company.

The plan of reorganization contemplates that the new corporation, which will probably be called the Sheffield Iron Company, shall have a total of mortgage and capital liability of \$4,000,000, of which \$750,000 will be 5 per cent. bonds, \$750,000 noncumulative 6 per cent. preferred stock and \$2,500,000 common stock. The stockholders are asked to pay in \$500,000 new cash, or 20 per cent. on the par value of their present holdings. This money is to be used as follows: \$125,000 for the payment of floating indebtedness, \$100,000 for improvements to furnaces and ore properties, \$75,000 for improvements to coal and coke properties and \$200,000 for working capital. Stockholders subscribing the new money will receive bonds and preferred stock at the same rate as the present holders of both classes of bonds, while at the same time receiving new common stock in the same proportion as their present stock holdings. At 90, the \$322,000 of bonds of the Sheffield Coal, Iron & Steel Company are to be taken in at the basis upon which they were sold in 1903, and the \$400,000 of bonds of the Sheffield Coal & Iron Company are to be taken in at the amount of the liens and interest for which they were held as collateral, or about \$378,000. The mortgage and capital issues proposed would leave in the hands of the committee \$165,400 of bonds and \$165,400 of preferred stock, to be used in carrying out the plan, or to be turned into the new company's treasury.

The Tri-State Mining Association, representing zinc mining interests in Wisconsin, Illinois and Iowa, will hold a convention at Milwaukee in the month of May, and will make a feature of the convention an exhibit of ore from various mines in those three States.



## Freight Classification Rules.

### Some of the Dangers Confronting Shippers.

BY R. L. ARDREY.

Several difficulties which shippers have encountered recently, like the new lighterage rules in New York Harbor, have grown out of one question which has not received consideration from shippers. Should the Interstate Commerce Commission recognize "usage and custom" in construing or interpreting the rules of the carriers, or should it prescribe new interpretations to conform literally and technically with whatever language may be used in these rules? Should the commission assume that everything that has been done in the past is bad, or at least open to suspicion, and that carriers and shippers must change their customs and re-establish their business to conform to whatever new rules or interpretations the commission may adopt?

Readers of *The Iron Age* are familiar with some of the fierce controversies that grow out of a single word or phrase in the customs tariff. In many cases a single lawsuit has cost \$25,000 or more to the citizen, firm or company interested. This hair-splitting litigation has been very profitable to the lawyers, and some of the decisions of the highest courts have caused wonder and bewilderment to the unfortunate business man who foots the bills. Now railroad tariffs and classifications have been erected into "law" by decisions of the commission and the courts. Are they to become, like customs law, a happy hunting ground for the legal fraternity? Railroad tariffs and rules are generally written by traffic men, who use language familiar to them, and the words are interpreted in accordance with the usage and custom of traffic men, and the business affairs of shippers are adjusted to this interpretation. Are these documents to be examined in the future with a judicial microscope which will search out and magnify interpretations entirely foreign to commercial usage?

#### The New York Lighterage Case.

Lighterage "switching" in and about the harbor of New York is very cheap, compared with switching by rail in interior cities. Practically all carload shipments involve a switching movement at each end of the haul. The running expense of a switch engine and crew is \$30 to \$40 per day, and in large cities the terminals over which they operate have cost a vast amount of money, involving heavy charges both for interest and maintenance. A shipper at the New York terminals can obtain the use of a lighter for \$10 per day, and there is no expense for interest or maintenance of the right of way, which, being navigable water, has been provided by nature and improved at public expense.

Recognizing this economy in disposing of export freight in New York, as compared with the expense on rail terminals, the carriers in the past have allowed "split" deliveries from a car to two or more piers for export shipment. The Interstate Commerce Commission, however, has rendered decisions, not directly on this question, which seem to make the split delivery illegal. The question is one of legal interpretation of a rule framed to cover deliveries on expensive rail terminals. If this rule is interpreted from a business point of view in accordance with usage and custom the split lighterage delivery at regular carload rates is not illegal, but lawyers employed as counsel for the railroads who follow the courts and the commission are earnest in their contention that the legal view must prevail.

#### The Team Track "Assistance" Case.

Another case of the same character has made trouble recently for thousands of shippers. Classification rules provide that the shipper and consignee must do the loading and unloading on shipments at carload rates. On crowded team track terminals, however, the railroads have long made a practice of furnishing assistance for loading and unloading. It has helped to avoid congestion and protected the roads against loss and damage

claims, but the word went out that the commission considered this "assistance" illegal, because it was not provided for in the rules and tariffs. From a strictly legal point of view the commission is undoubtedly right. Just at present shippers are suffering no irreparable injury because the traffic is not heavy enough to crowd the team tracks, but if business ever gets back to a full normal basis compliance with this legal doctrine will make the congestions of former years seem like a pleasant memory.

#### Loss and Damage Rules.

If the doctrine that has governed in these cases is to be followed all the way through the classifications of the railroads there will be real trouble for the shipper. All the classifications, for example, contain loss and damage rules, which were adopted years ago, when certain bright young men in the employ of the committees sought to distinguish themselves by making the shipper or owner assume the risk. The commission has not been given any direct jurisdiction over this question, but it has power to make regulations regarding the \$25,000,000 a year which the railroads pay out to shippers for damage to property in transit. It has been generally believed by shippers that these classification rules were dead, but in view of recent events it is scarcely safe to assume this of anything that bears an "I. C. C." number. There has been mysterious activity among the railroads regarding these rules, which has not yet been explained. The Western Classification Committee at its recent meeting at Hot Springs, Ark., adopted changes in its rule which bring it more into line with the official and Southern rules. As amended it will appear in the new issue, to take effect on all Western roads May 1.

In December *The Iron Age* reported the intention of the transcontinental roads to incorporate a similar rule in their commodity rates to and from the Pacific Coast. At their recent meeting the transcontinental lines adopted the proposed rule, substantially as previously published, but with an additional clause, which provides that the railroad will not be liable "for loss or damage of any kind unless caused by the negligence of carriers." The point in this amendment is that if the rule actually proves binding on the shipper he cannot collect a claim until he has proved that the damage was due to the negligence of the carriers. While this, from a business point of view, is true in more than 9 cases out of 10, it is almost impossible for the shipper to prove it in court.

In all the three classifications, covering the entire country, and in the new transcontinental commodity tariffs, the rules are on their face binding on the shipper, unless he has given notice to the agent at the time of shipment that he wants the carriers to assume their full legal responsibility, in which event the rate will be 20 per cent. higher. There are very few cases where shippers have voluntarily asked the railroads to charge them 20 per cent. more than the regular rates, and, so far as the writer knows, the claim agents have not used this rule as an excuse for declining claims. If they have done so with any shipper they have discriminated against him.

#### Statute Law and Railroad Tariff Law.

The Hepburn law was supposed to have settled this question, because a clause in it makes a carrier responsible for any loss or damage. Under the common law and the laws of many of the States the railroad is not liable if the loss or damage results from an act of God, the Government or the public enemy, but Congress ignored these exceptions, and has made the carrier an absolute insurer of the property while in its possession. This is the law as enacted by Congress, but the commission and the courts have held that whatever is printed in the tariff is also "law." Under the law enacted by Congress the shipper can sue the railroad and recover for damage to his property, but under the other "law," on file with the Interstate Commerce Commission, the railroad is liable to a fine of \$5000 each time it pays money to a shipper voluntarily, contrary to the provisions of its tariff. If any railroad wanted to stop paying claims, excepting when the shipper sues and gets a judgment, these rules would offer an excellent opportu-

nity. Not one claim in a hundred is large enough to justify the shipper in suing.

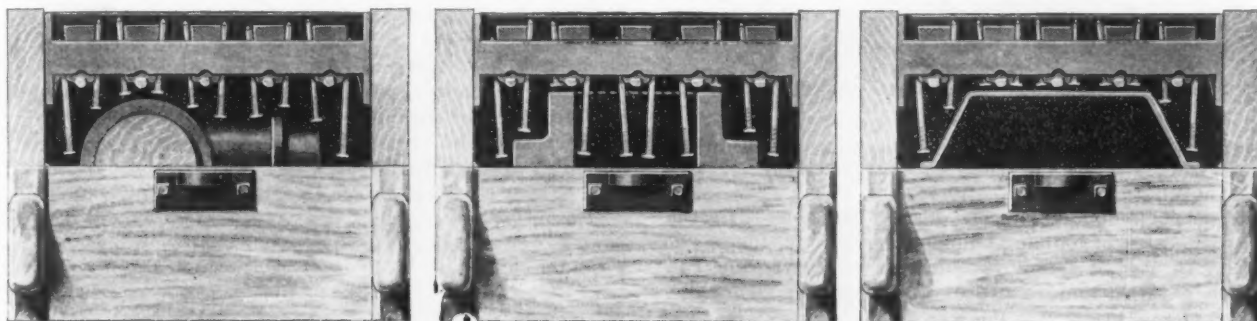
The muddle on this question of loss and damage shows the futility of attempting to place a strict legal construction on every word or clause in a tariff or a classification. As long as there is no intent to favor one shipper at the expense of his competitor, the commission should be urged to adopt a liberal view in the interpretation of tariffs. Favoritism to the large shipper was the one thing that the people intended to make a crime when they insisted that Congress should pass the Hepburn law. It would be intolerable to the business interests of the country if the 220,000 railroad tariffs filed last year, and all those that preceded them and have not been canceled, are to be given the same force as the customs tariff laws, and to be made the same kind of a field for hair-splitting litigation. The great Roman Empire, which embraced all of the then civilized world, was ruined by the multiplication of taxes, laws and lawyers, and the people of the United States are not prepared for so long a step in the same direction.

### The Universal Adjustable Flask Bar.

In the foundry a great deal of annoyance, expense and loss of time results from the lack of suitable or convenient means of anchoring the sand in the flask. Seeking to supply this need the Mitchell-Parks Mfg.

these bars will go further and handle a greater variety of work than four or five times as many flasks equipped with the ordinary bar. In short, flasks so equipped are claimed to save time, labor and money by avoiding trying to fit the ordinary bars or replace and refit them, in ramming the mold properly underneath, and in preventing the sand from falling down where it is not properly supported. It eliminates the use of all forms of gagers, &c., saving annoyance and expense. The cost of equipping flasks with the adjustable bar is said to be no more than that of rigging up the usual makeshift. While it can be used to advantage in connection with wooden flasks it is preferable, even in a jobbing foundry, to replace the latter with permanent metal ones, since a comparatively small number of assorted sizes equipped with the bar will answer all requirements for handling any class of work.

One of the most striking features of the bar is its simplicity. It can be easily cast and placed in any flask in proper lengths to fit the flask. The slots through the center of the bar for anchors and wedges are cored and no machine work is necessary. As anchors, either ordinary wire nails or wire cut to proper length may be used and the lower ends bent at right angles to form the heads to support the sand. To move or adjust the anchors the keys are loosened by striking the small ends with a hammer, and when a pair of anchors are properly placed or adjusted the large end of the key is struck a blow which securely locks the pair in position, and so on with



The Universal Adjustable Flask Bar Applied to the Cope of a Flask, Showing Three Typical Arrangements of the Anchors.

Company, St. Louis, Mo., has brought out the universal adjustable flask bar herewith illustrated. Of the common means employed to perform the same functions, such as plain wood bars in some cases, with nails or spikes driven into their edges, or iron bars provided with holes, dove-tailed edges or corrugated sides, &c., probably the most efficient are the former. One disadvantage of this is that the nails soon burn loose and fall out, so that they have to be repaired or replaced very frequently. Other disadvantages of the usual supporting bars are the difficulty of ramming the sand properly beneath them, either by hand or machine, and the inability to adjust them to support the sand at weak points where there is a special tendency to break down, or to conform to patterns of peculiar shapes, without special fitting for each case. When the last is accomplished with some success the flask is then unfit for use with other patterns, and it is necessary to tear out and replace and refit for different patterns. The only alternative to this is the carrying of an enormous variety of flasks, with bars fitted for different kinds of work, which is prohibitive in most foundries.

The new adjustable bar is claimed to overcome the objections met with in the use of the ordinary means, and to have the advantages that it is easy to ram the sand underneath the bar around the anchors, either by hand or machine; that all the anchors or sand supports can be instantly adjusted to conform to the shape, angles, curves, &c., of any pattern or set of patterns that can be placed within the flask; that each of the anchors or supports can be separately and independently adjusted vertically or to any angle necessary to support the sand in weak spots, that a flask equipped with this bar can be used as often as desired with one pattern, and then without much loss of time instantly readjusted to another radically different one; that a set of flasks equipped with

the remaining pairs. The bars are secured transversely in the flask, as indicated in the illustration, either by dowel pins, bolts or rivets, and are spaced sufficiently far enough apart to leave plenty of room for ramming the sand between them and under them. The illustrations herewith show three typical applications of the bar with nails head down used as the anchors.

The device has been patented in the United States and foreign countries. The Mitchell-Parks Mfg. Company is prepared to sell rights or licenses to use the universal adjustable bar, allowing the purchaser either to make his own bars or purchase them from the company in any desired lengths. Samples will be furnished for trials to those contemplating purchasing the license to use the bar.

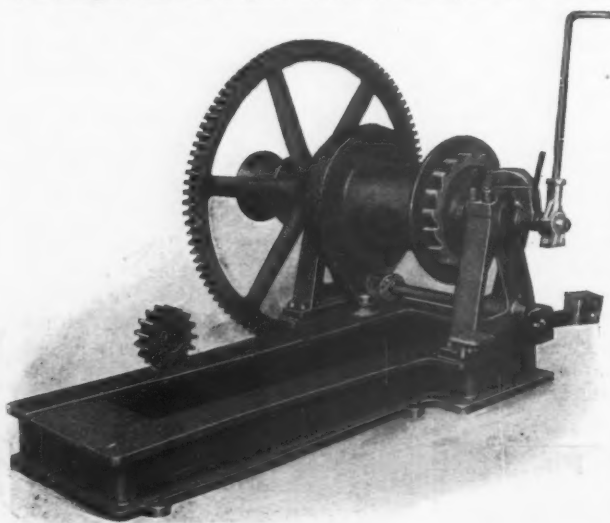
**Starting Gasoline Engines.**—While unknown to the editor at the time, it now appears that the apparatus for starting gasoline engines by means of a compressed explosive mixture, described under the above title in *The Iron Age*, March 5, 1908, page 752, is patented. The patent is owned by the Otto Gas Engine Works, Philadelphia, Pa., and other makers and users of gasoline engines are not entitled to employ the device or apply its principle without the permission of the owner of the patent.

The creation of a new executive branch of the Government, to be known as the Department of Transportation and Public Works, is provided for in a bill introduced by Representative Ransdell of Louisiana. The measure provides that the proposed new department shall construct and maintain all public buildings, works and improvements which shall be authorized by Congress, and that it shall in addition discharge the functions performed now by the Interstate Commerce Commission.



### A Carlin Contractor's Hoist.

All the parts for a self-contained gas engine driven hoist, with the exception of the engine, are supplied in the equipment herewith illustrated, by the Carlin Machinery & Supply Company, Allegheny, Pa. The hoist has a cut cast iron gear connected to the shaft of the drum through a friction clutch. A cut steel pinion is also a part of the equipment, and the base is extended beyond the drum and made of dimensions that will accommodate any of the leading types of gas or gasoline engines. Thus the foundation bolt holes need simply to be drilled through the flanges and the engine secured, adding a new line to



A Hoist and Subbase Adapted for Gas Engine Drive, Sold by the Carlin Machinery & Supply Company, Allegheny, Pa.

the gas engine manufacturers' stock. This hoist is for the particular use of building and engineering contractors.

P. B. Test, a building contractor of Pittsburgh, Pa., made a rather unique use of a similar complete hoist. After arranging to use the gas supply of a neighboring house he connected the gas engine to it with a common garden hose. Thus he dispensed with the labor of hod carriers and hoisted all brick necessary for a three-story brick building at an expense for fuel of but 2 cents per thousand brick. The price of gas was 25 cents per 1000 ft., and the arrangement was eminently satisfactory. Where gas cannot be secured gasoline is easily obtainable.

The hoist is single geared—that is, has only one set of gears between the engine shaft and the drum shaft—thereby effecting considerable saving in friction losses, wear and tear and the consequent replacements. These hoists are built in capacities of from  $3\frac{1}{2}$  to 12 hp. The smaller size is capable of lifting 1200 lb. on a single line at 100 ft. per minute. The 12-hp. size will lift over 2000 lb. at the same speed with a single line. In addition to the single drum type described, where these hoists are to be used in connection with derricks, they are made with double drums. A further specialization is where two cages operating on the endless rope principle are to be used in building construction in which case the mechanism is such that the direction of the drum rotation can be reversed, while the gas engine continues in the same direction. This is a decided advantage, owing to the difficulty of reversing the gas engine.

The cast iron beds of these machines are made open in the inside, so that when an engine does not have a gasoline reservoir contained in its bed a tank can be placed in the subbase of the outfit. The friction drum is made so that the engine can run constantly, but hoisting on the drum only takes place when the friction lever is moved, as on an ordinary steam hoist. The capacity of the 6-hp. size is sufficient to hoist two barrows of brick with two men in three and four story buildings. It is claimed by the manufacturer that the operation is so simple that an ordinarily intelligent laborer getting \$2 or \$2.25 per day can be entrusted with its care in a very short time after seeing it operated.

The drum on the 6-hp. machine is 10 in. in diameter, 14 in. long, and will hold about 900 ft. of  $\frac{1}{2}$ -in. wire rope. Other sizes of drums than the above can be furnished. The illustration shows a spool or cathead on the end of the drum shaft. This is not put on all machines, but when attached it can be used for dragging, hoisting, sometimes for raising the boom on a light derrick, and for other purposes.

### The Hobbs Finger Protectors.

For the use of operatives who work on machinery dangerous to fingers, including presses, punches, drills, automatic machinery, woodworking machinery and various machines used in general manufacturing, the Hobbs Mfg. Company, Worcester, Mass., is putting on the market a steel finger protector. The protector, which is shown in use in the accompanying illustrations, consists of a steel thimble long enough to fully cover the first joint of the forefinger, the digit that generally reaches farthest toward the point of danger. The tip is of solid metal; the walls are thick enough to offer sufficient resistance to working parts of a machine. The protector is tapered. When the finger thus covered is caught the shock has a tendency to throw it out. The end of the protector may be crushed flat, but the finger escapes injury under circumstances that ordinarily surround such an accident. In Fig. 1 the protector is shown on the forefinger of an operator on a paper box cornering machine. In Fig. 2 one of the protectors has been caught in the jaws of the machine, throwing out the finger and saving it. The device has been in use for some months, during which time the makers have received from users a large number of protectors which have been on fingers caught in machinery, the operators escaping injury, though the metal was badly crushed and occasionally broken or cut. They are furnished in pairs, packed in a box, and are made in two sizes, which cover difference in sizes of fingers.

The protector not only frees the operative from a constant source of danger and possible crippling injury, but

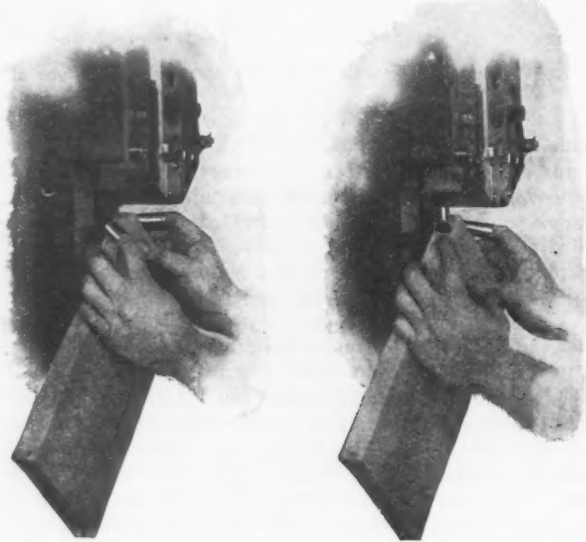


Fig. 1.

Fig. 2.

The Hobbs Finger Protectors as Used When Working on a Paper Box Cornering Machine.

lessens the employer's legal liability in case of injury to an operative, for with the warning which imposes the assumption of risk on the part of the employees additional protection against injury is given him or her. For this reason accident insurance companies have interested themselves in the protector.

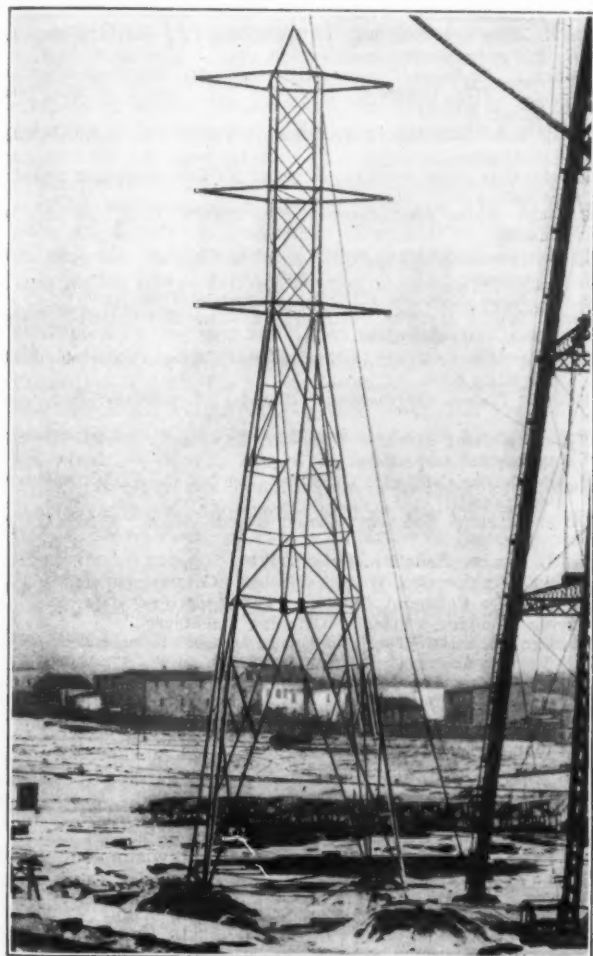
A complete ocean to ocean rail line is now controlled by the Harriman interests. The links are the Southern and Union Pacific, the Illinois Central and the Central of Georgia. These interests have several terminals on the Pacific, while their Atlantic terminal at present is Savannah.



### Milliken Structural Steel Poles.

The high voltage power transmission lines of the Great Western Power Company of California will eventually extend a distance of about 1000 miles. The power will be transmitted on two circuits of three wires each, carrying a current of 100,000 volts. This high voltage involves such danger to life and risk from fire that great care was exercised in selecting the poles to support the wires. The type which was adopted is shown in the accompanying illustration. The receivers of Milliken Bros., Inc., 11 Broadway, New York City, are manufacturing these poles at Milliken, Staten Island, N. Y., where complete arrangements have been made in the bridge and structural shops for getting out this particular class of structural work.

The pole is designed with three cross arms, it being intended to carry a feed wire on the outer end of each cross



The Milliken Structural Steel Tower for Supporting Electric Transmission Lines.

arm by suspended insulation. The top of the pole is arranged to take a guard wire. The poles are intended to be used about 750 ft. apart. The bottom of the lowest cross arm is 51 ft. 2 in. above the ground; the second cross arm is 10 ft. above the first, and the third 10 ft. above the second. The extreme top of the pole carrying the guard wire is 5 ft. 1 in. above the bottom of the highest cross arm. The feed wires will be carried 17 ft. 1 in. apart in a horizontal plane on the two upper cross arms and 18 ft. 1 in. apart on the lowest cross arm, thus making all feed wires 6 ft. 5 in. from the nearest part of the pole proper, measured in a horizontal direction. The bottom of the pole at the ground level occupies a base 17 ft. square. The stub ends of the pole—i. e., the parts in the ground—are separate pieces of steel and are long enough to embed 7 ft. in the ground.

These poles are constructed entirely of structural steel and are designed to follow the theoretical stresses and produce a pole of given strength and stiffness, with a minimum amount of material. There are a great many

duplicate pieces, thus making it a simple matter to assemble the poles in the field.

Very complete and careful tests of the strength of these poles were made before their regular manufacture was started. The test pole was erected in a vertical position on an immovable concrete foundation, and strains were applied in various directions to determine the allowable loads and the deflections produced. The pole as designed will withstand a simultaneous horizontal side pull of 1000 lb. at the top and 2500 lb. at each of the three cross arms, or, in other words, a total strain of 8500 lb. The cross arms will support a suspended weight of 1000 lb. at their extreme ends, and any one of the cross arms at these ends a horizontal pull along the line of 3000 lb.

As all the material, except the bolts and nuts, is galvanized by the hot process before shipment, and after all the shop work has been done, there has been added to the Milliken plant a large galvanizing department for doing this particular work. It is unique in that it has the largest hot galvanizing bath ever constructed. This bath is capable of taking pieces somewhat over 30 ft. long at a single dipping, which is much better than dipping long pieces one end at a time. The facilities are very complete in this plant for turning out large quantities of this class of work quickly.

These poles are all put together with bolts, and to reduce freight charges are shipped in pieces. The poles are stiff enough in themselves to stand being erected in one piece, thus obviating the necessity of erecting them piecemeal from the ground up.

### The German Iron and Steel Situation.

The output of pig iron in Germany and Luxemburg in January was 1,061,329 tons, as against 1,062,152 tons in January, 1907. The January figures show a decline of 45,046 tons from those for December, 1907. The January output of foundry iron was 192,456 tons; of Bessemer iron, 39,303 tons; of basic iron, 682,402 tons; of forge iron, 57,706 tons, and of ferro and spiegel, 89,462 tons.

The German Steel Syndicate reports that the deliveries of A products in January were 383,056 tons, as compared with 359,515 tons in December. In January, 1907, they were 489,571 tons. The Syndicate announced in the last week of February that, in view of the absence of inquiries for half finished steel for the second quarter and the fact that some consumers had still to buy for March, it would postpone fixing prices for April, May and June delivery. Some improvement in domestic inquiry for billets and blooms was noted, and the fact that February prices were maintained on the January level led to a betterment in export inquiry. Several large export orders for rails were reported pending.

Pig iron sales were light in the last week of February, and with stocks increasing a number of furnaces were blown out. The Rhenish Westphalian Pig Iron Syndicate on February 22 reduced the price it pays its members for hematite and foundry iron by 3 marks. The price to consumers is expected to be reduced accordingly. On March 1 the Syndicate introduced the export pig iron bounty on the same basis as when it was previously allowed in 1906—namely, 2 marks 50 pfennigs per ton. It was decided also to meet the competition of foreign hematite irons, so that best German hematite might not be displaced.

On petition of Charles W. Franzheim and others, John E. Wright of Wheeling, W. Va., has been appointed special receiver for the Wheeling Enameled Iron Company, which has a plant at Elm Grove, near Wheeling. The company was organized a few years ago with a capital of \$125,000 to make bathtubs and other plumbing goods, and finding a great increase in business, the stockholders a few months ago decided to authorize a bond issue, secured by a deed of trust upon the property, to meet the cost of building an extension. Owing to the financial stringency these bonds could not be marketed and a receiver was asked for in order to hold the property. The company is understood to be perfectly solvent.

## The Chicago Foundry Foremen's Convention.

### An Accompanying Exhibit of Machines and Material.

The convention of the Chicago Foundry Foremen's Association, held at the Lewis Institute, Chicago, March 5 to 7, inclusive, marks the second annual gathering of this prosperous and growing organization, which now numbers 105 members. Standing primarily for the encouragement of scientific study and investigation of matters pertaining to the art of molding and founding in all its branches, the association seeks in an educational way to further the interests of foundry and pattern shop foremen and incidentally to promote social intercourse between fellow craftsmen in this line of work.

In connection with the convention, and forming a specially attractive feature of the occasion, was an exhibition of foundry and pattern shop machines and material. The features of the machines were demonstrated by practical operation. The exhibits were shown under the joint auspices of the association and the Lewis Institute in the engineering building of the institute, the auditorium of which was used for the convention meetings.

#### Papers and Addresses.

The discussion of subjects relating to foundry practice engaged the attention of the convention on Thursday and Friday evenings, when several interesting papers and addresses on live topics were heard. In a talk on "The Work of a Commercial Chemist," C. C. Kavin, Chicago, outlined and emphasized the intimate relation of commercial chemistry to foundry work, and noted the advancement that had been made through this agency. He expressed the opinion that, in spite of strong prejudices which in some quarters still favor the employment of old hit and miss methods in foundry practice, the application of scientific knowledge to the problems involved will gradually supersede the inaccuracy of guesswork. A cinematograph demonstration and explanatory description of the French system of universal machine molding, given by E. H. Mumford, Philadelphia, commanded the undivided attention of an audience keenly alive to every point of practical value brought out in the demonstration.

The necessity for improved and modernized foundry plants and equipment formed the keynote of an address delivered by A. O. Backert, editor of the *Foundry*. The present depression, he asserted, strongly accentuates the need for the rehabilitation of old shops, and careful attention to every detail that will make for economical production in the arrangement and equipment of new shops. The scrap pile to which old machinery is consigned was referred to as a barometer of prosperity. Attention was also called to the fact that hitherto the foundry has not been given the liberal treatment and discriminating attention that has characterized the intelligent development of the machine shop, with the result that the former is not so nearly abreast of the times. As a reminder of the exacting qualifications required in a foundry foreman, the possession of which are essential to success, it was pointed out that he must not only have a comprehensive knowledge of metals and molding, but must have an intimate acquaintance with pattern work as well, and withal be successful in handling men.

Dr. Richard Moldenke, Watchung, N. Y., secretary of the American Foundrymen's Association, read an instructive paper on the "Prevention of Waste." Among the means noted for its accomplishment were the provision of good light and ventilation in foundries; the installation of adequate facilities, both within and without the shop, for the transportation of material, and more careful attention to the selection of molding sand. What was referred to as a particularly encouraging feature in foundry work is the growing inclination of foundry foremen to acquire every available scrap of information bearing upon the industry.

H. M. Lane, secretary of the Foundry Supply Association, and editor of *Castings*, spoke enthusiastically of the coming convention of his organization and the American Foundrymen's Association, to be held jointly at Toronto, Canada.

#### The Exhibits.

The entire foundry department on the sixth floor of the Lewis Institute engineering building was occupied by molding machine exhibits, rooms on the second floor and basement being devoted to core machines, wood-working tools and other foundry equipment. A list of firms represented and machines exhibited is as follows:

Arcade Mfg. Company, Freeport, Ill. Modern molding machines.  
 Goldschmidt-Thermit Company, New York. Demonstration of materials and apparatus used in welding and treating iron in ladle.  
 Killing Molding Machine Company, Davenport, Iowa. Molding machines and flasks.  
 Kroeschell Bros. Company, Chicago. Gyrating flame furnace in operation.  
 Macphall Flask & Machine Company, Chicago. Flasks and emery wheel dressers.  
 E. H. Mumford Company, Philadelphia, Pa. Machine molding and pattern making apparatus.  
 Henry E. Pridmore Company, Chicago. Molding machines.  
 Sandwich Mfg. Company, Sandwich, Ill. Bench molding machines.  
 Tabor Mfg. Company, Philadelphia. Power and hand molding machines.  
 Garden City Sand Company, Chicago. Sand, brick and foundry supplies.  
 Ballou's White Sand Company, Millington, Ill. Full line of sands.  
 Brown Specialty Machinery Company, Chicago. Hammer core machines.  
 S. H. Brand Company, Chicago. Eureka core machines.  
 Falls Rivet & Machine Company, Cuyahoga Falls, Ohio. Wadsworth core machines.  
 Fox Machine Company, Grand Rapids, Mich. Universal wood working tools.  
 Holland Linseed Oil Company, Chicago. Demonstration of core oils.  
 Killing Molding Machine Company, Davenport, Iowa. Electric connected saw tables.  
 S. Obermayer Company, Cincinnati, Ohio. Core oven and core compounds.  
 Oliver Machine Company, Grand Rapids, Mich. Woodworking tools.  
 J. W. Paxson Company, Philadelphia.  
 Calumet Engineering Works, Chicago. Calumet cupola.  
 W. C. Toles Company, Chicago. Patternmakers' vises.  
 Norton Company, Chicago. Grinding machinery.  
 Chicago Pneumatic Tool Company, Chicago. Rammers, chipping hammers.  
 Hanna Engineering Company, Chicago. Pneumatic and electric shakers.  
 Ingersoll-Rand Company, Chicago. Air hoist and rammers.

A very enjoyable and well attended smoker, given at the Sherman House on Saturday evening, concluded the programme. The officers of the Chicago Association are as follows:

President, Eugene W. Smith, foundry superintendent of the Crane Company; vice-president, Wm. J. Legg, foundry superintendent of the Featherstone Company; secretary-treasurer, C. E. Hoyt, instructor in the foundry department, Lewis Institute; chairman Educational Committee, A. M. Thompson, foundry superintendent of the Link-Belt Company.

The *Obermayer Bulletin*, issued by the S. Obermayer Company, Cincinnati, Chicago and Pittsburgh, was adopted as the official programme of the exhibit of the Chicago Foundry Foremen's Association, the current issue containing a great deal of information regarding several of the larger technical schools of the country. The *Bulletin* is intended for general distribution.

**The Foundry Exhibit at Toronto.**—A meeting of the Executive Committee of the Foundry Supply Association was held March 2 and 3 at Toronto, Ont., and was attended by E. H. Mumford, W. S. Quigley, J. S. McCormick, F. N. Perkins, U. E. Kanavel, J. S. Smith, E. J. Woodison, George Rayner and the secretary, H. M. Lane. A report was made by the Committee on Entertainment for the Toronto convention of the American Foundrymen's Association, to be held in the second week of June, and on behalf of the Foundry Supply Association \$500 was voted to the entertainment fund, in addition to



\$40 from the initiation fee and dues of each new member joining the Supply Association from Canada. It was stated that applications for exhibit space have been coming in well, one of these being from a Montreal firm, which will exhibit a French cupola in operation, so as to furnish molding machine exhibitors with iron for pouring molds. The secretary reported that the present membership of the Supply Association is 100, with six applications pending.

### The Philadelphia Foundrymen's Association.

The regular monthly meeting of the Philadelphia Foundrymen's Association was held at the Manufacturers' Club, Philadelphia, on the evening of March 4. Thomas Devlin, president, occupied the chair. R. B. Seidel, Inc., Philadelphia Black Lead Crucible Works, 1324-1334 Callowhill street, Philadelphia, represented by H. Y. Seidel, was elected to membership in the association.

A. A. Miller, secretary of the Local Weight Committee, tendered a report of the conference of foundrymen, pig iron and coke producers and transportation companies, held at the Bellevue-Stratford Hotel, February 5, after which the committee was discharged with the thanks of the association. The appointment of William S. Hallowell of the Harrison Safety Boiler Works, Philadelphia, and August A. Miller, *The Iron Age*, Philadelphia, by Henry A. Carpenter, chairman of the Weight Conference, to represent the Philadelphia Foundrymen's Association in the deliberations of a committee appointed under a resolution passed at the Weight Conference, was confirmed by motion, and these members will represent the association in the further work in endeavoring to formulate a plan for the correction of discrepancies in the delivered weight of pig iron, coal and coke. The first meeting of this committee will be held at the Bellevue-Stratford Hotel, March 18, and it was particularly requested that any foundryman who had experienced shortages in the delivery weight of the materials mentioned communicate at once with either of the representatives above named, giving specific information in each case.

The regular programme of having a paper read at this meeting of the association was departed from, and an open discussion by the members on the business situation was substituted. Abram C. Mott of the Abram Cox Stove Company; Dr. E. E. Brown of E. E. Brown & Co.; H. L. Haldeman, Pulaski Iron Company; T. Howard Sheeler, Sheeler-Hempsher Company; R. C. Oliphant, Trenton Malleable Iron Company; W. J. Spencer, Nelson Valve Company, and W. S. Hallowell, Harrison Safety Boiler Company, expressed themselves on the business outlook, and the consensus of opinion was that there had been some improvement in the situation in the past month. While plants were in almost every case running far below normal, gains in the number of orders were to be noted. The tendency of some foundrymen to reduce prices was deplored, as it was said that there was no reason for any decline, and the maintenance of prices was strongly advocated. Many of the foundries have iron still due them on high price contracts, and consumers are not disposed to buy in quantity or for forward delivery at any price under the existing conditions. Plants were stated to be running at varying rates of activity, ranging from 35 to 65 per cent. of the production at the corresponding time last year.

The Westinghouse Electric & Mfg. Company has won its suit in the United States Circuit Court of Appeals for the District of New Jersey against the Prudential Insurance Company of Newark, restraining it from further infringement of the Nolan patent No. 582,481 in the use of a direct current generator manufactured by the Bullock Electric Mfg. Company. The feature of the generator to which this patent relates is the means used for clamping the armature laminæ in place, which is a method of construction obviating the use of bolts passing through the laminæ for the purpose of holding them together.

### The Foundrymen's Weight Conference Committee.

Chairman Henry A. Carpenter, Providence, R. I., who presided at the Philadelphia conference of foundrymen and pig iron, coke and railroad interests last month, has announced the complete committee appointed under the resolutions passed at that conference, as published in *The Iron Age* of February 13. The committee will meet for organization and further consideration of the short weight question at the Bellevue-Stratford Hotel, Philadelphia, March 18. The members of the committee are as follows:

- J. J. Anthony, Weir Stove Company, Taunton, Mass.; B. M. Shaw, Walker & Pratt Mfg. Company, Boston, Mass.; New England Foundrymen's Association.
- W. S. Hallowell, Harrison Safety Boiler Works; A. A. Miller, *The Iron Age*; Philadelphia Foundrymen's Association.
- H. E. Field, Mackintosh, Hemphill & Co.; S. D. Sleeth; Pittsburgh Foundrymen's Association.
- B. F. Fackenthal, Thomas Iron Company.
- J. O. Henshaw, Woodward Iron Company and Virginia Iron, Coal & Coke Company.
- Leonard Peckitt, Empire Steel & Iron Company.
- F. A. Burr, Tennessee Coal, Iron & Railroad Company.
- Abel Mishler, Davis Coal & Coke Company.
- John M. Jamison, Jamison Coal & Coke Company.
- C. S. Hoskins, freight traffic manager, Merchants' & Miners' Transportation Company.
- T. W. Galleher, general freight agent; H. M. Matthews, general coal and coke agent; Baltimore & Ohio Railroad Company.
- F. E. Herriman, coal traffic manager; I. H. Hubbel, general freight agent; New York Central & Hudson River Railroad Company.
- R. C. Wright, general freight agent; R. H. Large, coal freight agent; Pennsylvania Railroad Company.
- A. S. Crane, assistant freight traffic manager, Boston & Maine Railroad Company.
- F. S. Holbrook, general freight agent, New York, New Haven & Hartford Railroad Company.
- G. R. Browder, assistant freight traffic manager, Southern Railway Company.

### The Westinghouse Companies.

The directors of the Westinghouse Electric & Mfg. Company have called a special meeting of the stockholders, to be held at East Pittsburgh, April 29, to vote on a proposition to increase the capital stock and bonded indebtedness of the company. The committee for the readjustment of the debt of the company, of which James N. Jarvis is chairman, has given notice to holders of the convertible sinking fund 5 per cent. gold bonds, 5 per cent. debt certificates, three-year 6 per cent. collateral notes and evidences of floating debt, that the time for deposit of such obligations has been extended until to and including March 31. A large part of these have already been deposited under the plan and agreement of January 20, which placed March 1 as the limit when deposits could be made, but the committee deemed it wise to make the extension. Under the agreement, the committee has the power to extend the time of deposits.

The rehabilitation of the Westinghouse Machine Company has been assured, the Creditors' Committee having met with the receivers and agreed to the plan proposed December 24, to issue bonds in denomination of \$500 for all indebtedness other than amounts smaller than \$500, which will be paid in cash. For the removal of the existing receivership it is only necessary to make application to the court, all creditors having agreed to the plan proposed. The bonds, which will be received as part payment of indebtedness, are for three years and bear 6 per cent. interest. During the interim business has been going on with little or no decrease.

D. B. Marwick, who has been manager of the Penn Shovel Mfg. Company's plant at Warren, Ohio, for the past year, has resigned to take the presidency and general managership of the Canadian Steel Rolling Mill Company, which will erect a plant at Campbellsville, Ont., about midway between Toronto and Montreal on the Trent River. Mr. Marwick has interested American capital in the formation of the company. The products of the mill will be sheets, bars and cold drawn steel. Water power will be used in operating the plant.



### A Mammoth Toledo Toggle Drawing Press.

A toggle drawing press of immense size and capacity, declared by its builder, the Toledo Machine & Tool Company, Toledo, Ohio, to be the largest of this type ever built, is shown in Fig. 1, as compared with a man of average size. It is intended for the manufacturing of a general line of deep stampings of steel or other sheet metals, but more particularly for brake drums and cast-

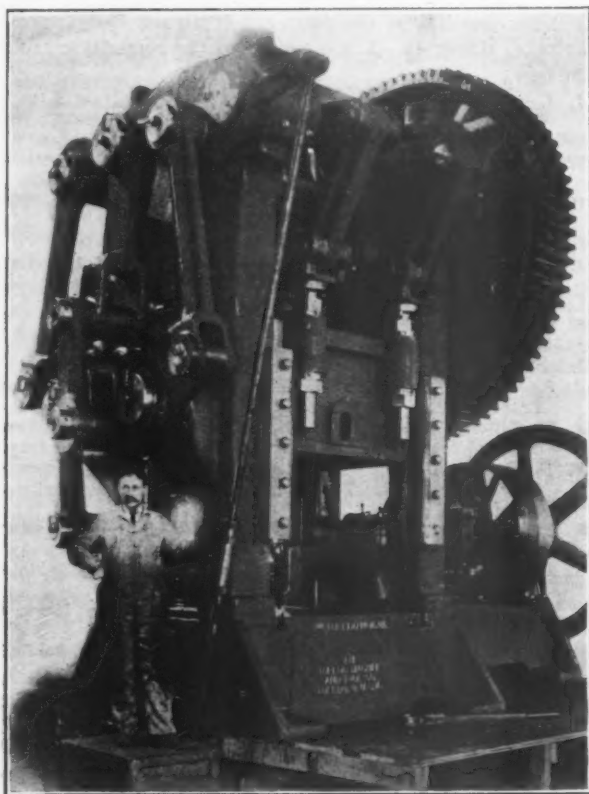


Fig. 1.—An Extremely Powerful Toggle Drawing Press, Built by the Toledo Machine & Tool Company, Toledo, Ohio.

ings for automobiles, steel closet tanks, sinks, bathtubs and similar work. An interesting feature of the machine is the small amount of power found necessary to operate the press, the belt used being 8 in. wide only, although

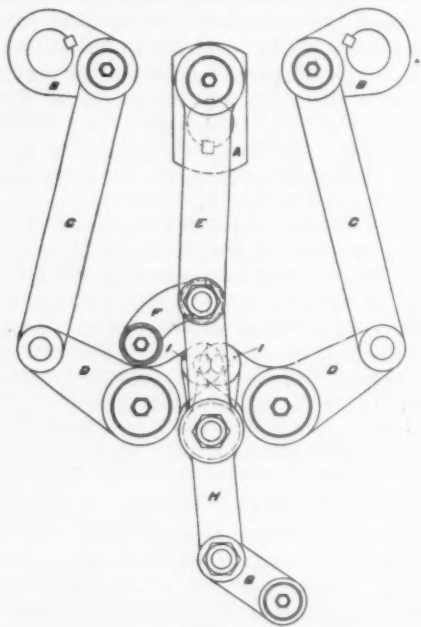


Fig. 2.—The Toggle Operating Links and Levers.

the machine is intended to be operated by a 10-in. double belt. The machine can be equipped also for direct drive from a motor or engine when so ordered. The reduction in amount of power required is obtained, it is stated, by the almost complete absence of friction in the new patented movement used for operating the toggles and blank

holder slide. This movement is entirely different from the slide bar and head movement used in other presses of similar types.

The crank A, Figs. 2 and 3, keyed to the outer end of the main crank or plunger shaft, connects to yoke H; this yoke is suspended between levers F and G, the levers having their opposite ends pivoted in each case to the side of the main housing or frame. Fitted in the yoke H are two levers, I, one end of each being attached to bell cranks D. The opposite ends of these two bell cranks connect with the links C, and these links connect with the cranks B, which are keyed to the rocker arm shafts. These shafts connect directly with the toggle movement of the blank holder. All these parts are steel castings and each bearing is bushed with bronze. The cranks B are practically at rest during over 90 degrees of the movement of the crank A, at the lower part of its revolution. The blank holder of the press operated by the inner toggle movement is by this method given the most perfect possible dwell during that part of the plunger stroke necessary in the drawing, redrawing or reducing operations.

All joints of the outer movement are oiled through the end of each of the bearing pins by self-feeding oil or compression cups. The easiest and smoothest movement is

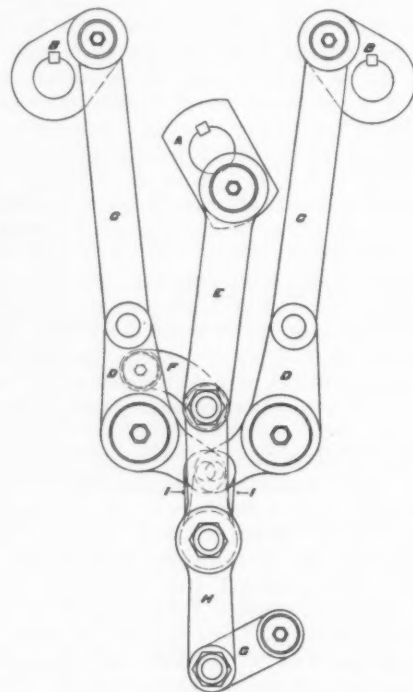


Fig. 3.—Another Position of the Toggle Mechanism.

obtained, and the very little motion necessary in the majority of the joints is held to eliminate over 80 per cent. of the friction occurring in the other forms of toggle operating movement. The press illustrated has a capacity for drawing cold steel plate as thick as 5-16 in.

The press is operated by a powerful friction clutch and is therefore under complete control of the operator at all points of the stroke of both plunger and blank holder. It is estimated that a resistance is obtained on the blank holder of over 2000 tons pressure. Some of the measurements of the machine are:

Complete weight.....	175,000 lb.
Width between uprights and bed area.....	57 in.
Distance bed to blank holder, stroke down and adjustment up .....	24 in.
Distance bed to plunger, stroke down and adjustment up ..	25 in.
Stroke of blank holder.....	18 in.
Stroke of plunger.....	26 in.
Size of balance wheel, 84 in.; weight.....	3,000 lb.
Size of belt pulleys.....	50 x 10 in.
Speed .....	250 rev. per min.
Size of main gearing.....	124 x 14 in.
Proportion of gearing.....	50 to 1
Size of shaft at crank bearing.....	13 in.
Floor space of base, 100 in. front to back, 176 in. right to left.	
Height over all from floor line.....	21 ft.

This press was designed and built for the A. O. Smith Company, Milwaukee, Wis.

## Data on Rail Mill Practice.

The investigations of the joint committee of steel works experts and railroad engineers last year into the practice of the rail mills of the country included a detailed examination into rail mill arrangement and procedure. This showed considerable diversity as to the number of passes, for example; also in the matter of shrinkage and time elapsing from the passing of the rail out of the finishing rolls until the drop of the saws. The railroad representatives found, on going into these questions, that differences in construction of mills and the relation of the components of the mill to each other, made it impossible to lay down hard and fast rules as to saw runs, for example, and as to time between various passes. Some of the tabulated data gathered by the committees have been published by the *Railway Age*, from which the accompanying table is taken.

Particularly noteworthy is the variation in the number of passes and the relation of the number of passes to the size of the ingot. The amount of bloom crop and of rail crop is also a matter of special interest. The figures given are based upon the average of 50 consecu-

Association. A generous entertainment was furnished.

The annual meeting of the Worcester Branch was held at State Mutual Restaurant, Worcester, Mass., with a record breaking attendance. Edward M. Woodward, Powell Planer Company, was elected president; George I. Alden, Norton Company and Norton Grinding Company, vice-president; Charles F. Marble, Curtis & Marble Machine Company, treasurer, and George F. Brooks, Harrington & Richardson Arms Company, Albert E. Newton, Prentice Bros.' Company, and Clarence W. Hobbs, Hobbs Mfg. Company, members of the executive board for a term of two years. Donald Tulloch will be re-elected secretary by the executive board. The annual reports showed the branch to be in a most prosperous condition. George F. Brooks, the retiring president, was the toastmaster at the dinner following, at which the speakers were President Melville H. Barker of the National Association, Edwin E. Bartlett, the newly elected president of the Boston Branch; J. H. Cone, assistant secretary of the National Association, and Frederick Fosdick of Fitchburg.

The second annual meeting of the Cleveland Branch of the National Metal Trades Association was held at

Data on Practice in American Rail Mills—December 1, 1907.

Mill.	Section Ingot.—In.	Estimated av. wt. Ingot.	Number of passes.				Saw run. Sec.*	Shrinkage allowed on 33-ft. rails.—Inches.				Discard from bloom.			Discard from rail.			Total discard.	
			Bl.	Rou.	Fln.	Total.		70-lb.	80-lb.	85-lb.	100-lb.	Aver. crop.	Est. wt.	% of wt. of ingot.	Rail Aver. crop.	Est. wt.	% of wt. of ingot.	wt. of ingot.	% of wt. of ingot.
A	18½ x 19½	5,400	19	8	3	30	35	70-lb.	80-lb.	85-lb.	100-lb.	23.5	474	8.77	80	21.1	46.9	0.87	9.64
B	19 x 23	6,000	15	10	2	27	17-19	5½/16	6	6	6½/16	27.7	628	10.46	80	30.1	67.0	1.12	11.58
C	17½ x 19½	4,800	7	10	1	18	12-14	...	...	...	...	15.8	437	9.10	85	26.3	62.1	1.29	10.39
D	17½ x 19½	4,800	7	...	...	...	...	7½	...	...	...	15.8	437	9.10	85	24.2	43.7	0.91	10.01
E	18 x 22	...	11	10	1	22	12-17	5¾	6¾	6¾	6¾/16	...	...	...	...	...	...	...	...
F	18 x 20	4,720	17	7	5	29	32	6¼/16	6¾	7	7	25.5	446	9.45	85	25.4	60.0	1.27	10.72
G	18 x 19	4,360	9	8	1	18	12	6½/16	7	7½	7½	12.0	245	5.63	85	17.0	40.1	0.92	6.55
H	19 x 19	4,200	6	4	5	15	40-45	6¾	6¾	6¾	6¾	10.8	195	4.65	80	32.2	71.5	1.70	6.35
I	20 x 22	5,750	13	6	5	24	28-30	6¼	6¼	6¼	6¼	34.2	475	8.26	90	20.7	51.8	0.90	9.16
J	19 x 23	6,800	15	10	1	26	...	...	...	...	...	39.0	707	10.40	75	24.0	50.0	0.74	11.14
K	17 x 17	...	9	6	5	20	5	6%	6%	6%	6%	...	...	...	...	...	...	...	...
L	...	...	...	...	...	16-19	...	...	...	...	5½/16	...	...	...	...	...	...	...	...
M	19 x 23	6,690	15	7	2	24	27	6¾	6¾	6¾	6¾	25.6	465	6.94	85	27.0	64.0	0.96	7.90
N	18 x 21	6,127	11	10	1	22	...	...	...	...	...	6¼	359	5.87	60	17.0	28.3	0.46	6.33

\* Time in seconds from time rail leaves finishing rolls till saws drop.

tive ingots rolled in each mill, and are considered representative of the practice obtaining on December 1, 1907.

Special notes as to reheating and as to the holding of rails between passes are made, relative to the practice in the different mills, as follows: A.—Blooms reheated: Rails held between passes 35 sec. till both ends of first rail are cut. B.—Blooms reheated. C and D.—Blooms reheated. Rails not held between passes. E, F and G.—Rails not held between passes. H.—Rails held 40 to 45 sec. till both ends of first rail are cut. I.—Rails held between passes. M.—Rails not held between passes.

## Metal Trades Association Meetings.

The annual meeting of the Boston Branch of the National Metal Trades Association was held at the Parker House, Boston, March 4, with the largest attendance in the history of the organization, 98 being present. The reports of officers showed a most prosperous condition. Edwin E. Bartlett was elected president; E. P. Robinson, Atlantic Works, East Boston, vice-president; A. L. Lovejoy, Simplex Faucet Company, Hyde Park, treasurer; M. H. Barker, American Tool & Machine Company, Boston, and Fred F. Stockwell, Barbour-Stockwell Company, Cambridge, members of the Executive Committee for two years; and Winslow Blanchard, Blanchard Machine Company, Cambridge, member for one year, to fill the vacancy caused by the election of Mr. Robinson as vice-president. D. F. S. Clark will be reappointed secretary by President Bartlett. The speakers at the banquet following were Mayor George A. Hibbard of Boston; Melville H. Barker, president of the National Association; Henry F. Arnold, president of the New England Foundrymen's Association; George H. Ellis, ex-president of the United Typothetæ of America, and J. H. Cone, assistant secretary of the National Metal Trades

Association. A report on the work of the branch during the past year was made by L. H. Kittredge, the retiring president. The report of the treasurer, W. C. Bruce, showed that the financial condition of the branch is very satisfactory, being better than ever before. Secretary Frankel's report showed that eight new members had been added during the year, making the present membership 56. At the banquet which followed, brief addresses were made by C. O. Bartlett, T. P. Robbins, W. D. Sayle, H. H. Hammond, S. P. Orth and others. Henry W. Avery acted as toastmaster. Mr. Bartlett presented the matter of having Cleveland manufacturers unite in sending a representative to South America for the purpose of enlarging their trade in those countries. No action was taken on the matter.

The two blast furnaces under construction at the Ohio works of the Carnegie Steel Company, at Youngstown, Ohio, will be equipped with Cowper two-pass firebrick stoves lined with the design of checker brick patented by Frank C. Roberts, Philadelphia. Five of the six furnaces are furnished with Cowper-Roberts stoves. Including those under construction, there are 20 stoves of this type at these works.



# THE IRON AGE

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RICHARD R. WILLIAMS,	-	-	-	-	-	MANAGING EDITOR.

## Revolutionary Political Campaigns.

It has happened more than once in recent time that the American people, either in an important political campaign, or in the thick of some great labor conflict, have gone into a vital economic or social question as though it were new. At such times all that established custom was presumed to have settled and all that years of legislation and administration had grained into the life of the country seem to count for little.

The Presidential campaign of 1892, when tariff reform was made the issue, is one example. The friends of "tariff reform" took nothing for granted, in spite of the splendid industrial development of the 25 years following the Civil War, which the advocates of protection considered to be obviously the fruit of that policy. The discussions in the press and on the stump centered about the question whether or not the proposed change in the national revenue policy would result in a wider distribution of the profits of industry and raise the general scale of living.

The campaign of four years later, when the country was passing through the fourth year of prostration resulting from the panic of 1893, furnished an even more striking example of the ease with which a very large proportion of the American people have occasionally allowed themselves to be persuaded that by a single stroke of legislation many of the ills from which they suffered—not to mention some from which they were not suffering—would be permanently cured. What had been reckoned as established principles underlying our currency laws were brushed aside as though they had never gained a footing. Babies and sucklings in finance went up and down the country speaking as those having authority, and proclaiming in the ears of the people their coming emancipation from the errors and wrongs of years. The remarkable thing about that campaign, as it is now looked back upon, is that so large a percentage of American voters cast their ballots for a proposal which, as is generally admitted to-day, would have plunged the country into financial and industrial chaos.

Six years later came the anthracite strike, and again the country was swept with a wave of economic reform. Property rights in mineral fuel were treated for the time as though the question had just come up for consideration, whether there were any obligation to recognize them. Government seizure of coal mines and their operation "in the interest of the people" was seriously advocated as a solution of the conflict between mine workers and mine owners.

With the presidential campaign of 1908 but a few

months ahead, we are in no doubt as to the character of some of the issues that will be raised. Tariff, labor and railroad and other corporation questions, have already been put in the forefront. Government control of trade will be proposed on a scale that may even lead the Socialist party to claim, as another party has been claiming for some time, that its issues have been appropriated by those who are not of it. Starting with the pronouncement that dishonest business methods must be put down, we may expect to find many reformers crying this year for the overturning of the foundations of business. Encouraged to believe in government by denunciation, many who go out to tell the people of their political wrongs and perils may be expected to arouse all the passions that were stirred up in 1896, and that have been appealed to on various occasions since. The doctors of finance who from a thousand platforms taught the people 12 years ago will reappear in 1908 as final authorities on the questions that for years have vexed the best brains in the railroad world. The people will be asked, because there has been moral delinquency in business, to make it harder for railroads and other corporations to carry on business at a profit. Moreover, the issues, as the party platforms define them, will quite certainly be obscured by the conflicting attempts to fasten responsibility for the business slackening that has already brought suffering to so many industrial communities. We shall expect the present depression to be urged as a strong reason for tempering the radicalism of some of the legislative programmes. We also look to see this same industrial distress made use of, as in 1896, to lead voters to fly to ills that will be offered to them as panaceas.

Some of the political issues of the coming campaign are new in form of statement, yet they are in fact the re-appearance of populist proposals of other years, that represent the effort to limit the rewards of exceptional talent in the fields of transportation, manufacture and finance. The turmoil attending the discussion of these proposals is not welcomed by business. Yet it cannot be argued that all change is necessarily evil. New issues must be met and the temporary ferment and upheaval are often a necessary preliminary to a better order of things. At the same time the great fear is that change will be mistaken for betterment. Granting that some things need reforming, the cure should not be worse than the disease.

There is one source of encouragement in facing the impending discussion of questions of such vital concern to the vested interests of the country: It is the fact that the American people are not apt to go wrong on questions involving property rights. Mistakes have been made, but when the issues are clearly drawn it has not been possible yet to get a majority for any policy taking away freedom of opportunity or depriving the individual citizen or the corporation of the fruits of honest effort. The saving good sense of the people must yet be depended upon.

## The Cultivation of Home Trade.

In the keener search for business that comes with reduced demand, the manufacturer naturally looks over his immediate home market to see if it is developed as it should be. Difficulty is sometimes experienced in so judiciously distributing patronage among local dealers that they may not be inclined to take on a competing line to the detriment of the home product. Some manufacturing houses have heretofore paid little attention to local conditions, so far as their own output is affected.

But influences are now working which are likely to foster a sentiment of reciprocal home relations between lines of business that by their nature are somewhat dependent upon one another. Buyers are paying more attention to the welfare of their neighbors, friendliness playing some part in the change, but to an extent secondary to business considerations.

This, in many cases, is a proposition which is not free from difficulties. The manufacturer using large quantities of supplies can buy more cheaply as a rule in a market that is not confined to the narrower limits of his own section. This is true practically everywhere, excepting in the great cities, the degree varying somewhat in proportion to the population and the nature of the local industries. There is, however, another side of the question. If a manufacturer produces some article of mill supply, for instance, he must expect that the local dealer will be disposed to carry a competing line unless he has an adequate share of the manufacturer's mill supply business. For this reason it not infrequently happens that a customer is put to some trouble to secure a local product, because its maker has not secured the co-operation of the local dealer. It would seem to be an easy matter for the two to get together on an equitable basis, especially in small places where there are no great number of dealers. A chance for some form of association work in a wide variety of lines is suggested by the thought. Perhaps local boards of trade and chambers of commerce and other similar organizations could do fully as much good for their communities in this direction as in others which are attempted. If the condition of working at cross purposes existed everywhere, it would even up the distribution of business to a great extent. But cities and towns are to be found where the most cordial co-operation exists, and the local manufacturers and dealers reap the benefit of their own loyalty, together with the results of the lack of co-operation in other places. And, *vice versa*, those other places suffer in proportion as the loyal community benefits.

Some railroads, it is observed, are beginning to see that it is not always the best economy to buy at the lowest possible price in the open market, if the strict enforcement of such a policy means the purchase of supplies from manufacturers and dealers located on other railroad systems. An important Eastern system has recently made a rule, we are informed, that as far as possible supplies shall be purchased locally—that is to say, in the city or town where they are to be used. There is a chance that the cost to the road may be greater, though there should be some saving in the re-handling of goods that have been delivered to a central warehouse and have to be distributed over the system. But the prosperity of communities dependent upon the road will be enhanced and their purchasing power correspondingly increased.

In the machinery trade complaints of the lack of loyalty between neighbors is no uncommon one. Machine tool men of the same place or section are apt to buy of one another unless they can do materially better elsewhere in price, delivery or excellence of machine. But other users of machine tools sometimes evince almost a prejudice against a home product. It is a case of a prophet without honor in his own country. There may be no good reason for preferring machinery built by neighbors in any direct returns to the buyers. But friendliness results in influences which later may indeed be very important. Some cities are noted for the loyalty of their industries to one another. Other communities are as well known for the tendency in the other direction.

The latter condition exists more often in old manufacturing centers than in the newer ones where a broader spirit of co-operation prevails.

### A Contemplated Advance in Freight Rates.

Decidedly unusual action is stated to be under discussion by important railroad interests. They propose to advance freight rates, instead of reducing them. It is further reported, and with some show of official sanction, that the national administration will not be averse to an advance of, say, 10 per cent. The attitude of the administration with regard to the maintenance of present rates of wages paid to railroad employees invests this report with plausibility. The fact is now recognized that the decreased earnings, resulting from the diminished volume of traffic, due to the depression in general business, have put many railroad companies in a position requiring something to be done for the purpose of keeping them in solvent condition, to say nothing of giving a little return to those who have made investments in railroad securities. The railroads are being ground between the upper and nether millstones. Their rates are being regulated both by the national administration and State authorities, and under present conditions of business they can only safeguard their earnings through the application of minor economies. They can lay off train crews and put their idle locomotives and cars on side tracks and reduce repairs to the absolute minimum. With no shrinkage in their fixed charges, however, it has become a grave question with numerous railroad companies how to offset continued diminution in gross earnings. The natural and time honored way in which to effect further economy would be through a general reduction in wages. That some movement in this direction is contemplated has been shown by the announcement of proposed reductions by a few railroad companies and by drastic reductions in officers' salaries made by some important systems.

The admonition to railroad companies by the national administration that in the event of reductions in wages the Interstate Commerce Commission would be directed to institute an investigation for the purpose of determining whether such reductions were warranted, shows that the power of the Government is to be exercised to prevent a movement of this character. This is the first time in our history that an effort has been made by the Government to interfere with what would appear to be the natural order of things. It is an attempt to set aside economic laws and introduce a new era.

An advance in freight rates would seem to be the necessary corollary to such a procedure for the purpose of preventing disastrous consequences. It remains to be seen whether this can be made effective. There are numerous branches of industry which have suffered heavily, not only in a reduction in the volume of business, but also in a serious recession in prices. Under such circumstances manufacturers naturally endeavor to reduce their cost of production and are further anxious to effect some saving in the cost of marketing their goods. In previous times of depression struggling manufacturers have turned to the railroads for relief, and have been favored with reductions in freight rates. To manufacturers of pig iron, for instance, these reductions have been exceedingly desirable, as they are obliged to assemble such great quantities of raw materials that even moderate freight reductions have been of high importance. They have also been favored with reductions on the transportation of their product to distant markets. Even now efforts are being



made to secure lower rates on pig iron where long hauls must be made from the furnaces to consumers. If at this time, in spite of securing concessions of this kind, a movement should be made in the other direction, and freight rates advanced, it is easy to see that the regular course of trade will be impeded and operations may be further restricted.

In considering this question, the fact cannot be overlooked that the national administration does not have the field of railroad regulation completely to itself. Many States have railroad commissions clothed with authority to regulate rates on railroads operated wholly within the boundaries of the State. Within the past three months some of these companies have ordered reductions in freight rates, a conspicuous example being the Kansas Commission, which has ordered a reduction of 20 per cent. How an obstruction of this kind could be overcome in case the interstate railroads should make an advance of 10 per cent. does not appear. The situation is one which has numerous complications, and therefore promises interesting developments in case such a policy should be carried into effect.

### Eight Hour Bill Hearings.

#### The Measure Strongly Opposed by Prominent Steel Men.

WASHINGTON, D. C., March 7, 1908.—The House Committee on Labor has just given a series of hearings to the representatives of prominent manufacturing and employing interests on the pending bill forbidding Government contractors or subcontractors from employing their workmen in excess of 8 hr. on Government work in any calendar day. The hearings will continue for another week or so, when the bill will be voted upon first by the subcommittee, which now has it in charge, and then by the full committee. Owing to uncertainty as to the attitude of several members of the committee, the final action on the measure cannot be foreshadowed.

An interesting feature of the past week's hearings was the testimony given by I. Walter Jenks, general manager of the bar division of the Carnegie Steel Company, and A. R. Hunt, general superintendent of the Homestead plant of the same company. Both were before the same committee in 1904 and have since made a very careful investigation with a view to determining whether it would be practicable for the Carnegie Company to accept Government contracts or subcontracts, and have reached the conclusion that steelmakers as a class would refuse all such work, and that the Government would be compelled to build its own plants. Mr. Jenks said:

#### Testimony of I. Walter Jenks.

I have taken the matter up for careful investigation, and have conferred with at least 50 people in all lines, including mechanics, sub-foremen, superintendents, and so on, up to the president of the company. We have come to the conclusion that we could not possibly meet the conditions of this bill, and we should have to choose between a universal 8-hr. day and declining to bid on Government contracts.

As steel is made at our works, it would be impossible to make a part of our product on an 8-hr. and a part on a 10 or 12-hr. basis. It does not make any difference where you start. If you take the actual making of the steel you cannot divide that. The same is true of the running of the engines. We have cases where one engineer looks after two engines, one of which may be running on Government work for two or three hours while the other is not on such work at all during the day. You cannot sub-divide such work on the basis of this bill. Even assuming that your administrative force is exempt, you could not divide the work of the force that would unquestionably come within the operation of the proposed law. Now, the Government buys a great deal of steel, but the amount we supply is only about 3 or 4 per cent. of our output. If we had to make that under this bill there would be an enormous increase in its cost. I am not the executive head of the Carnegie Company, but personally, I would never touch Government work under the

conditions it is proposed to prescribe. The competition among steel makers is so keen and the profits so small that no one could afford to meet the difficulties that would arise under this bill.

There is a point I would like to speak about relative to the character of the labor in the steel industry of to-day. I have gathered the impression that these gentlemen around this table believe that a man in a steel works is obliged to work so hard that he can hardly walk home at night. We have no such jobs left in the business. Years and years ago we had one or two positions that were very hard, but to-day such work is done by machinery, and it is simply a matter of pushing a button for an electric crane or something of that sort, and I will guarantee that our men are less tired at night than a girl who works in a department store.

#### Superintendent Hunt's Statement.

Mr. Hunt said the Homestead plant now employs about 10,000 men, and its output last year was 120,000 tons per month, of which about 3 per cent. was for the Government. Continuing, he said:

In making steel there are three requisites: first, quality; second, quantity, and, third, low cost of manufacture. We are opposed to this compulsory law, first, because we could not make the necessary quality of steel under its provisions. It requires about 12 hours to make a heat of steel in an open-hearth furnace. The work has to be observed very closely, and should you change crews during a heat the new man, not knowing exactly how the furnace is working, would in all probability spoil the metal. After the heat is made it is tapped into a ladle, which is picked up by a crane costing about \$25,000. The time of this crane would have to be divided between Government and commercial work, and the man operating it, who is usually high up in a cage, would be required to step out at what might be a very critical moment and give place to another man. Similar difficulties would be encountered in the handling of material intended for a heat where powerful cranes are used.

After the steel reaches the rolling mills it is rolled into a plate and in order to make good material it must be finished by the same roller and crew. If you change these men the chances are that you will spoil the job. It is even more important that there should be no shifts of crews on a single job in the tempering shop, as there the operation is so delicate that no two men could divide the work of supervising it. It would be impossible to overestimate the demoralization that would be brought about by the division of responsibility that would be made necessary by this measure. In the case of two crews making a single heat of steel which came out badly, you could not tell whether the first or the second was to blame and the same is true of practically every other branch of the work.

#### Would Restrict Output.

We are opposed to this bill in the second place because it would materially reduce our output. More tonnage can be made in 24 hours divided into two shifts of 12 hours than would be possible in three shifts of 8 hours. This has been fully demonstrated in our plate department at the Homestead mills, which were operated on an 8-hr. shift for experimental purposes. We soon changed back to 12 hours, and the output immediately increased 35 or 40 per cent. without the outlay of a single dollar for improvements.

We are also against this measure because of the increase in cost that would ensue. The amount of spoiled material would be very great; the loss of time going off and coming on, and other factors in the operation would entail a very heavy unnecessary expense, which would materially increase the cost of all serviceable material produced.

With regard to the argument that men will do better work on an 8-hr. basis than if working a longer day, I know it to be a fallacy from my own practical experience. I have been a workman, and I know the trials and tribulations of workmen, but I also know that the man working in a steel mill on a 12-hr. turn will do more and better work the last two or three hours of the 12 than he will do in the first two or three or four hours. I do not know that I can fully explain it, but it is due to a sort of getting together, or to a desire to get out of the day's work all there is in it. It is the reason they produce a much heavier tonnage in the last hours of the shift, and this is also true with regard to the night shift.

#### Scope of Exemptions.

Following Mr. Hunt's statement there was an interesting discussion, participated in by members of the committee and by the attorneys present, with regard to the significance of the exemption contained in the pending bill, which excludes from its operation any article purchasable in the open market, "even though made to conform to particular specifications." Great diversity of opinion was developed, and it now appears either that the exemption is valueless or that it is so broad as to render the proposed law an absolute dead letter, for the

reason that it is possible to buy in the open market articles similar to practically everything which the Government is required to purchase. Inasmuch as steel material of all kinds, vessels, guns, &c., of comparatively small size may be bought in the open market, it seems to follow that all such articles, "even though made to conform to particular specifications," are entitled to exemption, and that this would cover even a battleship or a rifle of the largest caliber. The question serves as an excellent illustration of the vague character of many of the most important provisions of the pending bill.

The committee is in receipt of a request from the New York Metal Trades Association that its representatives may be heard in opposition to the bill, and will give them a day the coming week. Upon the conclusion of the hearing two or three days will be devoted to arguments by the attorneys for the principal industries affected by the pending measure. It is therefore unlikely that a final vote will be taken on the bill before March 20.

W. L. C.

### Canadian Industrial Bonuses.

An attempt is being made at this winter's session of the Ontario Legislature to prohibit municipalities in that province from giving bonuses and tax exemptions to new industrial undertakings. This is the second time within 10 years that an effort has been made to this end. The last was in the session of 1900, when the late Andrew Pattullo, editor of the *Sentinel Review* of Woodstock and member for North Oxford, introduced a bill much on the lines of that which J. P. Downey, member for North Wellington, has submitted to the present Legislature.

#### The Evils of Bonuses.

When Mr. Pattullo asked the Legislature to give a second reading to his bill he went over the 95 Ontario municipalities which up to 1900 had given bonuses or other largesse to industries. He showed that more than one-third of the bonused industries had failed, and insisted that bonuses usually represented the pitiable efforts of decaying towns, decaying industries and decaying men. Bonuses went to those who did not need them, to those who were going down in the industrial race, or to adventurers who were ready to gamble on success with the money of the municipalities.

He characterized the system of bonusing as a fruitful source of municipal corruption, and maintained that voters at municipal elections were bribed with their own money to support bonus by-laws. He showed that there was no precedent for bonusing industries in the history of British municipalities; that 30 of the American States, by clauses in their constitutions, prohibited municipal largesse to industry; and argued that the system as it had developed in Ontario was particularly hard on labor, which was compelled to move from place to place when one municipality outbid another in voting bonuses to an industry. The province was industrially prosperous in 1900, and Mr. Pattullo pleaded that an end could best be made to the system when times were good.

A Liberal government was then in power and it gave no support to the Pattullo bill. It was opposed by Mr. Whitney, then leader of the Conservative opposition, now Premier of Ontario. The bill for prohibiting bonusing accordingly failed to become law; and since that time the system of bonuses, municipal loans and other largesse to industry has been more rampant than at any time in the industrial history of Ontario.

#### The Bonus System Older Than the Protective Policy

It is sometimes claimed that the system grew out of the national policy adopted by Macdonald and the Conservatives in 1879. But as a matter of fact it is older than that policy. It was in existence before Macdonald in 1876 committed the Conservative party in Dominion politics to protection, for in that year, while Macdonald and the Conservatives were still in opposition at Ottawa, Macdonald directed the attention of the House of Commons to the bonus system in Ontario, and cited it as a proof that the people of Canada were ready to make sacrifices for the upbuilding of Canadian industries. Since

then the Ontario system has been adopted in one form or another in the provinces of Quebec, Nova Scotia and New Brunswick.

Of over 140 American industrial firms—most of them in the iron and steel industry—now established in Canada—many have been recipients of municipal largesse. To go no further back than 1907, Chatham, Ont., voted a municipal loan of \$20,000 to a brass goods concern from Grand Rapids; Sarnia voted a \$12,000 bonus to a chain company of Pittsburgh, and a loan of \$12,000 to the Jenks-Dresser Bridge Company; Stratford undertook to guarantee \$30,000 of the bonds of a Bradford, Pa., cutlery company; Parry Sound raised a loan of \$100,000 for promoters connected with a smelting company which had its headquarters in the United States; and as recently as February 24, 1908, Campbellford, Ont., gave a free site and 10 years' exemption from taxation to a group of American promoters who are about to install a \$60,000 rolling mill. Lachine, near Montreal, stands ready to-day with a bonus of \$50,000 for the Imperial Locomotive & Machine Company, an English concern, and has also pledged itself to exempt the company's plant from municipal taxation for 20 years; and Fort William, Ont., in 1907, voted \$68,000 to purchase industrial sites, one of which was assigned to the Imperial Steel & Wire Company.

#### Competition of Municipalities for New Industries.

In Ontario the system of bonusing and granting tax exemptions has become so common with the smaller municipalities, that no sooner does an industrial promoter appear on the scene than the municipal authorities crowd on him at his hotel with offers of largesse. By setting one municipality in competition with another, he can get practically anything he wants in the way of free sites, free water, free power and tax exemptions. Many Ontario municipalities have thus for a time propped up industries that under normal conditions could not be made to succeed in the localities where they were established.

On Collingwood Harbor, on Georgian Bay, there are to-day an open hearth plant and a rolling mill which constitute a somber monument to the system against which Mr. Downey's bill now before the Ontario Legislature is aimed. The output of the plant was just sufficient to secure for its promoters the large bonus voted by the municipality of Collingwood. But this comprised practically the whole of the output, and the plant, which was transferred from Indiana to Collingwood, has for 12 months been idle and unproductive. The cities of Toronto, Hamilton and London would like to see an end of the municipal largesse system. It is the votes of the representatives of the smaller communities which will endanger Mr. Downey's bill in the Legislature. E. P.

**Scottdale Sheet Works Improvements.**—The American Sheet & Tin Plate Company, Pittsburgh, has started its Scottdale Works at Scottdale, Pa., which shut down last August for the purpose of erecting a new building and making some extensive improvements. The original mill was a frame structure, erected in 1872, but it was torn down last summer. Since that time a new steel frame building has been erected to take the place of the old one, a new annealing building erected, and a large galvanizing plant built, all the buildings being of steel frame with galvanized sides and roofs. They are fitted with modern appliances for annealing and galvanizing sheets, and a system of electric cranes will convey the material to all parts of the buildings, from the time it enters on the east side in sheet bars until it is ready to be loaded on the west side of the plant in the form of galvanized and corrugated sheets.

The New York Shipbuilding Company, Camden, N. J., launched successfully February 29 the steamship Oklahoma, the largest bulk carrier of oil ever built in this vicinity. The vessel is being built for the J. M. Guffey Petroleum Company, to ply between the Gulf and Northern ports. The length over all is 441 ft., width 55 ft., and depth 21 ft. It will be equipped with compound engines developing 3200 hp., three boilers fired with oil fuel and will have a carrying capacity of 2,100,000 gal. of oil.



## Foundry Waste.\*

BY DR. RICHARD MOLDENKE, WATCHUNG, N. J.

In these times of serious industrial depression perhaps no subject should receive greater attention than the prevention of waste. In the rush of the high periods of our national prosperity all too often the maxim is forgotten that "waste makes want." In view of the present attempt to hold up the natural laws of supply and demand, we will undoubtedly have ample opportunity to take stock of the situation and to apply every possible remedy in our foundry establishments until material and labor come down to normal conditions. As this eventuality may be considered a foregone conclusion, now is the time to plan improvements to do away with wasteful methods of manufacture. When the low level has been reached these improvements should be completed, so that when the next rush comes conditions nearer the ideal as we now know it may prevail and our prosperity be correspondingly enhanced.

Let me say at the outset that genuine improvements do not necessarily mean a cutting down of the wages of employees, but rather the opposite. Brains are worth money, but manual labor should be turned over to the coal pile as much as possible. The time is fast approaching when our knowledge of methods and materials will be such that what was formerly considered an art will be so simplified that men with less skill, operating on machines, will turn out as good if not a better product than is the case to-day. This will not hurt the present supply of highly skilled men, but rather enable them to turn their art to better account in higher positions.

### Buried Wealth in Foundries.

In passing through many foundries I have often been tempted, on seeing the end of a lump of iron stick out from behind a lot of rubbish in a corner, to take a silver dollar from my pocket and ask the foundry foreman to throw it in there also. The point is generally quickly understood, for there are several good dollars, even if in iron and not silver, lying idle and destined to be buried or lost in some other way. While in Pittsburgh in my earlier days I usually had some 50 lb. of dynamite on hand for use in blowing up salamanders as they were unearthed in the foundry in making changes in the plant. From what one hears of the burial of accidents and mistakes in that city, its manufacturing districts must be veritable mines for salamanders and bad castings. This is the case doubtless in other cities, and yet every bit of that material should go into the cupola or basic steel furnace. In short, the foundry foreman working in the interests of his employers can save quite a lot of waste in iron in the course of a year. Every foundry of any account should have an electro-magnetic separator for the shot made, as well as a slag barrel for the same purpose. I have known these separators to pay for themselves in three months, and saw one some time ago set up on the dumping pile of the foundry waste which was paying handsomely in iron recovered.

Who has not gone through the matter of saving the unburned portion of the cores used in the foundry and profited thereby? How many foundrymen will allow their foremen to experiment with binders and mixtures until the proper one is found giving the greatest satisfaction at the least cost? Yet unless this is done for every new set of conditions arising there is a positive waste.

### Economical Arrangement and Equipment.

To take up the subject systematically we must first start with the general layout. If the means of communication in the foundry or manufacturing establishment are not at once simple and effective no time should be lost to make them so, even if walls have to be cut with a general rearrangement of the departments. This can be accomplished slowly and without disturbing conditions of work too seriously. Next proper light and ventilation should be provided. There should be no dark corners nor too convenient gates. An electric light plant of ample capacity is a good investment. The use of torches and dirty win-

dows is waste. Heavy smoke induces cessation of work that has money value. Means should be provided to carry iron to every point in the foundry without breaking down men. In the larger shops small jib cranes save money in allowing a molder to handle his own work without disturbing every one near him. All this comes under the head of equipment, which makes the first cost of the foundry higher, but saves labor and thereby money. We could add to this air equipment for chipping, molding, cleaning and what not. These things you know of and many installations can be bought on terms which practically allow them to pay for themselves. In such a case never hesitate to add them to the shop.

### Molding Sand and Molding Machines.

Perhaps the one thing to which the least attention is given is the molding sand and molding problem. Probably it is thought we can learn little more in these directions, but this is a serious mistake. We of all countries are farthest behind in the matter of preparing our molding sand. It is still too cheap. We sometimes buy ground sand because we think we are getting a better material, and yet find roots and soil in it. I venture to say that no foundry foreman is entirely satisfied with his sand. He would always like to have it better. Now, this is no fault of the sand man, for he gives his best. He even mixes and treats it for his customers so that they have the best possible chance for fine castings. The trouble is that we do not yet know enough about the physical constitution of a molding sand to give it the proper treatment. The ideal conditions are those in which any amount of pounding will not prevent proper venting, and yet the sand must be able to bond properly. At the same time it must be refractory to a high degree and stand repeated applications of melted metal without spoiling too much of it. The American Foundrymen's Association is giving considerable attention to this matter from the standpoint of the art of founding, leaving the practical application to the individual.

The greatest elimination of foundry waste ever brought about was through the introduction of the molding machine. Perfect as these machines are becoming, 50 years from now we will think those of to-day crude. Think for a moment how the success of a molding machine is tied up with the sand used on it. Correct this element of uncertainty and a further step in the direction of the elimination of waste will have been taken.

### Loss of Castings Through Ignorance.

The next greatest waste in the foundry is the loss through ignorance of the molder's art. The discount and time cards speak for this. What is badly needed is instruction day in and day out to the men engaged in molding, coremaking and other occupations requiring skill. The foreman has his hands full with the larger questions. He cannot go into the small details, and yet from neglect of these the waste is great. The old custom of piling up the molder's bad castings for inspection at dinner time is a good one, but still better is an interview with him at his bench or floor by an expert specially engaged to do this under the foreman's direction. How many of our larger shops have this in operation?

In the larger classes of work, the loss of pieces is small, but the time taken for molding is great. How often this could be cut down effectively by proper appliances. For small castings the usual custom is to pay by the piece, with perhaps a premium attached for extra efficiency. But how many bad castings are made which could have been saved by proper instruction, not to speak of the greater output per flask if the mixing and melting of the metal were made more perfect.

One of the most notable improvements I have seen in recent years is the desire on the part of foundry foremen and superintendents to acquire every scrap of information it is possible to get hold of. They have realized the importance of this far more quickly than their employers, and therein really lies the hope for future improvement in the industry. The foreman of to-day is just as able to calculate out a mixture as the chemist. He may not yet understand the action of the elements completely, but with the aid of night schools, by reading and asking questions, he will soon get all that he re-

\* A paper read at the convention of the Chicago Foundry Foremen's Association, March 5, 1908.

quires. The general movement for industrial education is not only the result of effort on the part of the employer, but also the willing acceptance of the idea by those who will eventually profit by it.

#### Waste in Melting.

Taking more particularly the metallurgical end of the foundry, we find a direct waste in improper melting methods. How often have I found a 2000-lb. charge consisting of the usual pig irons and scrap, and a 500-lb. ladle to tap into. And then there was worry about porous or otherwise defective castings. To come right down to a question of daily practice: Inasmuch as the bed of a cupola coke charge is fixed by the desired capacity to hold iron and by the location of the melting zone (only the coke above the tuyeres being effective and the rest only so much filling to cool the iron rather than heat it) why is the first charge of iron used made so heavy? The melting of this lowers the coke bed seriously and the second charge of coke does not bring it back to the place it had originally. Now as the iron and the coke come down in the succeeding charges this level may be raised again, even above the original bed, with the result that often the last coke charges must be reduced to get proper results. A much better practice would seem to be to make all the iron charges small, the first as well as the last, dividing the coke so that the proper ratio is kept for the whole run. This gives the smallest variation of the coke bed and, as I have always found, the most uniform iron. After all, it would seem that our old foundrymen were not so far off when they first put in their bed of anthracite, then charged so many shovels of scrap, so many pigs, then some more anthracite, then metal again, all in very small quantities. They did make castings that are our admiration for quality to-day, though we consider the melting method crude. I will only say that with even large diameter cupolas, where the work has to stand water pressure tests, and hence must be perfectly uniform in character, besides correct in composition, the above method of very small charges of 500 lb. of metal and the corresponding coke directly from the bed up gives excellent results where the old big charge method falls.

Now in cupola practice saving is in most cases waste. I strongly deprecate the attempt to get high melting ratios. The few pounds of coke saved always mean trouble in other directions. As long as the first iron shows from 7 to 10 min. after the wind is put on, and the iron does not come too slow or hot at the end, it is better not to tamper with the coke ratio of the cupola in question. Similarly to attempt to save 25 cents a ton in the mixture and increase the percentage of discards or the cost of machinery is a waste. Buying high silicon iron to mix with plow points may work all right, but usually means waste until handled right. Far better, if hard and soft irons are to be made in a day's run, to use high grade ferrosilicon in the ladle.

It is incumbent on every foundryman to study his problem carefully, working hand in hand with his foremen, and making change after change on careful deliberation. Eternal vigilance is the price of financial success, and with safeguards placed about every process used, details put into responsible and intelligent hands, the supervision of a plant becomes a pleasure instead of a burden.

Haniel & Lueg, Duesseldorf, Germany, state that an inaccuracy occurred in an item printed in *The Iron Age* of February 6, saying that the Krupp Works at Essen had ordered a 4000-ton hydraulic forging press from Davy Brothers, Ltd., Sheffield, England, the latter firm receiving the contract in competition with German manufacturers. The facts are as follows: Some short time before the above mentioned contract was arranged the Krupp Works had placed a contract with Haniel & Lueg for the supply of a 4000-ton steam hydraulic press to make gun barrels, &c. As the Krupp Works desired two such presses, it ordered the second one from Davy Brothers, who, to receive the order, were compelled to meet the requirements of the Krupp Works and adopt the specified German press principle, namely, steam and hydraulically driven.

#### Connecticut River Power Projects.

Two great projects for developing the water power of the Connecticut River are being formulated. One is that of a new corporation known as the French-King Rapids Power Company, which is seeking rights from the Massachusetts Legislature to build a dam five miles above Turner's Falls, with the purpose of distributing power in Worcester County. The incorporators named are Philip Young, Henry I. Harriman and Joseph O. Proctor, Jr., representing the same interests that have already begun the development of large power projects on the Connecticut River at Hinsdale, N. H., and Vernon, Vt. Strong opposition is presented by the Turner's Falls Company, which controls large water power at that place.

The second project is that of residents of Springfield, Mass., to build a dam just above Windsor Locks, Conn., with the purpose of developing power and at the same time co-operating with the plan to create a navigable channel to Springfield. This is a matter for the Federal Government to decide, and the question is being given serious consideration by Congressman Lawrence of Massachusetts.

The construction of a dam across the Connecticut at Brattleboro, Vt., is now well under way. By means of the dam it is proposed to distribute the electric power within a radius including parts of three States. Now that the plan to utilize the power has materialized the work is being rushed to completion by a force of 450 men working day and night. The cost of the dam will be more than \$1,000,000. The electric power developed will be 16,500 hp., and the rights at the French King Rapids, 14 miles south of the present site, have been acquired, where an auxiliary dam will be constructed if a petition for a charter, now before the Massachusetts Legislature is granted. This would materially increase the available power.

#### The Alabama Consolidated Coal & Iron Company's Finances.

The Alabama Consolidated Coal & Iron Company will ask its preferred stockholders to exchange their shares for third mortgage 5 per cent. bonds. It is proposed to issue \$1,750,000 of the bonds and to offer to exchange them for preferred stock on a basis of par for par, provided the preferred stockholders subscribed to an amount of the bonds equal to 20 per cent. of their stock holdings at 70. This plan, if availed of by the preferred stockholders, will work out as follows:

Bonds exchanged for stock.....	\$1,250,000
Bonds subscribed for.....	250,000
Bonds left in treasury for future requirements.....	250,000
Total.....	\$1,750,000

It is proposed to pay the preferred stock dividend to February 1 to those accepting the proposition. The bonds are to be dated February 1. The preferred stock is entitled to dividends of 7 per cent. a year, but the last quarterly dividend was not paid. It was earned several times over, but because of bad collections payment was deferred.

The Baltimore Bridge Company, Baltimore, Md., has recently taken several contracts for bridge and building work, and now has enough orders on hand to enable it to operate its plant at two-thirds capacity for the next three months. One of the orders recently taken by this company was for a bridge to be erected in Panama for the United Fruit Company. This will have a main cantilever span of 500 ft., and takes about 1200 tons of steel. This company is now erecting a bridge of about the same size across the Changuinolo River, in the same country.

Estimates of the American Railway Association show that the surplus of idle cars, from being 343,000 on February 5 and 320,000 on February 19, was below 300,000 on March 1, and it is officially stated that the number was reduced in still greater ratio in the first 10 days of March.



## The Coal Movement Increasing.

BY F. E. SAWARD, NEW YORK.

The coal movement continues to increase, as there is an awakening of industrial conditions. The chief index in the Eastern section is the report of the Pennsylvania Railroad, which now shows a reduction of less than 16 per cent. of soft coal carried, as against the corresponding time last year. There is now grave prospect of a suspension of production after April 1 in the central producing districts, and many operators would welcome the stoppage of mining for a month, in order to help use up the supplies on hand with their customers, as well as the stocks held on their own account. Events in the past week in reference to the Bituminous wage agreement resolve themselves into three chief happenings: 1. The failure of the Illinois operators and miners to reach a preliminary understanding. 2. The adjournment of the Interstate conference at Indianapolis without calling a joint convention. 3. The summoning of a miners' national convention in extraordinary session for March 12.

At tidewater soft coal continues to show a gradual picking up. There is a better demand for the higher grades, and there is less heard of the cheaper grades. The shippers of the lower grades have discontinued sending them forward for the present, and business is turning to the better qualities, making a fairly good market for them, but at what would ordinarily be termed low prices. The demand, however, outside of contract business, is almost entirely local, the Eastern market still remaining dull and very little coal being sold in that direction. New England requirements seem to be confined to contract business. The railroads are taking what they can, but a large volume of their requirements has been cut off for the time being. New orders are scarce, and, so far, there has been nothing like the usual volume of contract business closed. This is being delayed much later than ordinarily. The Sound trade is nearly as bad as further east. There is a little better demand in this section, all wanting high grades of coal as cheap as possible.

Philadelphia line business is fairly good, and prices are about on a par with those prevailing in the usual summer. Tidewater business is not heavy, the bulk of the coal going on export or Southern business, outside of the Eastern contracts, and deliveries on those are light. Shipments from Baltimore are heavy, as compared with other ports, a great deal going to the Eastern market on contract orders. It is almost impossible to sell spot coal standing at the piers at that port, all shippers having all of their own grades required.

As to Anthracite steam coals, it may be said that pea coal is still short as ever, and is commanding good prices for that available. The restriction has had its natural effect on this size, and has made the shortage more pronounced during the past few weeks. The advance made some months ago by the various companies has been maintained for the coming year, and will no doubt be held firm. Buckwheat is also short, and prices on the cheaper grades have advanced somewhat in consequence. This size is short with practically all of the companies, and if the demand was as strong as usual at this season this feature would be much more pronounced. Rice is also scarce. Prices are better as a result, but no material advance has as yet taken place. Very little is coming forward on account of the heavy pumping being done by all of the companies in the Lehigh and Schuylkill regions. Shippers formerly using barley under their boilers have been compelled recently to use all of their barley, most of the rice and in many cases a large quantity of buckwheat for this purpose. As a result, but a small quantity is available for the market, making it particularly short at present. Barley is short, but not feeling the effect of its scarcity to as great an extent as the other of the small sizes. This is mainly due to the small general demand for it, next, that most consumers have considerable in storage, and, last, that most of this size comes from the Wyoming District, where the operators are not having the water trouble to anything like the extent that is troubling the other districts.

Prices at New York ports are about as follows:

Georges Creek.....	\$3.35 to \$3.55
High grade, three-quarter lump.....	3.10 to 3.15
High grade gas, run of mine.....	3.00 to 3.10
Best Miller vein coals.....	2.75 to 2.85
Good Miller and Moshannon.....	2.60 to 2.70
Best Somerset.....	2.70 to 2.80
Ordinary Somerset.....	2.60 to 2.70
Fairmont, three-quarter.....	2.65 to 2.70
Fairmont, run of mine.....	2.80 to 2.90
Odds and ends to relieve embargoes, &c.....	2.40 to 2.50

Line Bituminous rates are as follows:

*Pennsylvania Railroad Coals.*

Georges Creek.....	\$1.05 to \$1.80
Best Miller vein.....	1.25 to 1.30
Good Miller and Moshannon.....	1.15 to 1.25
Best gas coal, three-quarter lump.....	1.30 to 1.40
Best gas coal, run of mine.....	1.20 to 1.30
Best gas coal, slack.....	.75 to .85
Ordinary Clearfield.....	1.00 to 1.10
Ordinary Latrobe.....	.90 to 1.00

*Baltimore & Ohio Coals.*

Georges Creek.....	\$1.60 to \$1.80
Best Somerset.....	1.15 to 1.20
Somerset.....	1.05 to 1.10
West Virginia Freeport.....	1.00 to 1.10
Fairmont District, three-quarter lump.....	1.00 to 1.10
Fairmont District, run of mine.....	.90 to 1.00
Fairmont District, slack.....	.65 to .75

## PERSONAL.

J. W. Scull, formerly purchasing agent of the Pressed Steel Car Company, Pittsburgh, has resigned to accept the position of manager of the Pittsburgh office of the Summit Lumber Company, St. Louis, located in room 509, People's Bank Building, Pittsburgh.

Theodore Geissmann & Co., Commercial National Bank Building, Chicago, have appointed D. S. Hunter manager of their Minneapolis office, having in charge the firm's interests in the Northwest.

Charles H. Gifford, Dedham, Mass., has resigned his position as assistant general manager of the B. F. Sturtevant Company, Hyde Park, Mass. E. B. Freeman, who was formerly general sales manager of the company, has been made assistant general manager.

Henry R. Towne, president of the Yale & Towne Mfg. Company, has been elected president of the Merchants' Association of New York.

Vincent Callaghan, who has been employed by the Frick Coke Company in sinking a shaft at its Standard Works, has been appointed superintendent of the Oliphant Works in the Connellsville region.

J. W. Duntley, president of the Chicago Pneumatic Tool Company, returned to New York this week from Europe.

Joseph Wharton, Philadelphia, celebrated his eighty-second birthday anniversary on March 3. Mr. Wharton is still confined to his home.

George Shook, superintendent of Hannah Furnace of the Republic Iron & Steel Company, Youngstown, Ohio, has been made superintendent of the Haselton furnaces of the company, succeeding William Fair, resigned.

## The Youngstown Sheet & Tube Company Buys the Morgan Spring Company at Struthers, Ohio.

After negotiations extending over several months, the Youngstown Sheet & Tube Company, Youngstown, Ohio, has purchased the plant of the Morgan Spring Company at Struthers, Ohio, and it will be turned over to the former on March 16, and will be operated by the new owner after that date. This purchase does not in any way affect the plant of the Morgan Spring Company at Worcester, Mass. The Struthers plant consists of quite a large acreage of very desirable land, practically adjoining the property of the Youngstown Sheet & Tube Company at East Youngstown, and comprises one continuous Morgan rod mill, a wire drawing plant and a wire nail factory.

The purchaser will at once proceed to double strand the rod mill, thereby doubling the capacity, and will also double the product of the wire drawing plant and wire nail factory, which will give an output of 8000 to 10,000 tons of wire products per month. The sale of this product after March 16 will be handled from the Youngstown offices of the Youngstown Sheet & Tube Company and its regular authorized agents at other points. Its present sales organization will be considerably enlarged to take care of the details of this new line of business, and also of its greatly increased pipe production, due to the erection of a number of additional pipe furnaces now under way.

Reports that the Youngstown Sheet & Tube Company is negotiating for the purchase of Mary Furnace of the Ohio Iron & Steel Company, Lowellville, Ohio, are absolutely untrue.

## OBITUARY.

**CHARLES STODDARD CHAPIN**, Worcester, Mass., until recently treasurer and manager of the Washburn & Garfield Mfg. Company of that city, died March 3, aged 67 years. He was a native of Enfield, Mass. His earlier business experience was with a dry goods house, but for many years he was connected with the Washburn & Garfield Company, jobber and manufacturer of steam heating and plumbing supplies. He was a member of the firm for many years before its incorporation, and was its treasurer until his retirement on account of poor health a year ago. He served in the Civil War in the 60th Massachusetts Infantry, was for years quartermaster of the Third Brigade of Massachusetts Militia, for two years president of the Worcester County Mechanics' Association, former president of the Commonwealth Club, member of the Worcester Board of Trade and member of a number of social and fraternal organizations. He leaves one daughter.

**JUSTUS A. TRAUT**, New Britain, Conn., long prominently identified with the rule department of the Stanley Rule & Level Company, and president of the Traut & Hine Company of the same city, died suddenly March 9. He was born in 1840 at Potsdam, Germany. The father was an inventor, and his genius was inherited by the son, for from his brain came hundreds of useful inventions, some of them very important. As a boy he entered the employ of the Stanley Rule & Level Company under his father, F. A. Traut, who founded what is known as the Traut department of the great factory, and at the death of the elder, the son assumed charge of that branch of the business. In June, 1904, there was celebrated the fiftieth anniversary of his connection with the company. He was a director of the New Britain National Bank, was instrumental in the founding of the New Britain Hospital, was a member of the New Britain Club and was president of the Country Club of Farmington, Conn. He leaves a widow and two sons—George W. Traut, treasurer of the Traut & Hine Company, and Frank L. Traut, who was associated with his father in the works of the Stanley Rule & Level Company.

**GUSTAV MAWITZ WESTMAN**, who came to this country from Sweden in 1877, died in New York City, March 6, aged 73 years. He was graduated in chemistry from the Upsala University, and attained distinction in the Russian iron and steel trade, introducing original processes. A recent invention of his covered a process for the manufacture of wrought iron from iron ore.

## NEWS OF THE WORKS.

### Iron and Steel.

The rod mill at the plant of the Page Woven Wire Fence Company at Monessen, Pa., which has been running on half time or less, is expected to run practically full during March. While all departments of this plant are in operation they are not running to quite full capacity, but the outlook for the future is regarded as fairly encouraging.

It is authentically reported that the Woodstock Iron & Steel Corporation will rebuild its furnace at Anniston, Ala., now idle, at an approximate cost of \$200,000. One furnace at the Anniston plant is in operation.

The Rothert Steel Company, Hoquiam, Wash., has been incorporated with a capital stock of \$100,000, and will engage in the manufacture of crucible steel. The incorporators are E. H. Rothert, R. E. Arthaud and Howard Cox.

The Vulcan Crucible Steel Company of Pittsburgh, with offices and works at Aliquippa, Pa., manufacturer of high grade tool steels, is installing additional boiler capacity and making other extensions to its plant, which will largely increase its output.

The National Tube Company, McKeesport, Pa., has received some fairly large orders for Shelby steel tubing from the Isthmian Canal Commission.

### General Machinery.

The Reineke-Wagner Pump & Supply Company, Pittsburgh, has received an order for two 12 x 10 in. and three 7 x 8 in. Goulds triplex pumps for the Woodward Iron & Steel Company, Woodward, Ala., which company also ordered from the General Electric Company, through George R. Wood, two 30-hp. and three 6-hp. induction motors. The Reineke-Wagner Company has recently received the following orders: A 3½ x

4 in. triplex pump for the Mack Mfg. Company, New Cumberland, W. Va.; 9 x 12 in. triplex pump, Atlantic Turpentine Company, Mt. Pleasant, Ga.; 5 x 6 in. triplex pump, Shawmut Mining Company, St. Marys, Pa.; 7 x 8 in. triplex pump, American Sewer Pipe Company, Barberton, Ohio, plant; 4 x 6 in. triplex pump, National Metal Moulding Company, Economy, Pa.; 3 x 4 in. triplex pump, United States Sewer Pipe Company, White Oak, Pa. The company has just shipped a 10 x 12 in. electric pump and an 8 x 10 in. boiler feed pump to the Diamond Rubber Company, Akron, Ohio, and two 5 x 6 in. triplex pumps to the Monongahela River Consolidated Coal & Coke Company.

The Barnes Mfg. Company, Lanesboro, Pa., manufacturer of mill and quarry machinery, steam engines, turbine water wheels, &c., is enlarging the capacity of its plant and increasing the scope of its business. Within the past few weeks it has purchased the stock and equipment of the Alston Stone Machine Company, Endicott, Pa., including Garvin millers, lathes, radial and post drills, presses, shapers, bolt machine, boring mill, slotter, and emery and tool grinders, which will be added to the present equipment. A Pelton water wheel and a new generator have also been installed. In addition to its present production it will manufacture the Alston stone sawing machines, which have an extensive sale in this country, England, Canada and Germany.

The capital stock of the Leader Iron Works, Decatur, Ill., has been increased from \$75,000 to \$100,000. This action is preliminary to the execution of plans now in contemplation for the extension of its plant necessary to take care of its increasing business.

### Power Plant Equipment.

The Crown Cork & Seal Company, Baltimore, Md., has purchased the following equipment for the new extension to its power house: One 450-hp. Harrisburg engine, one 300-kw. Crocker-Wheeler generator, direct connected to engine; one 100-kw. Crocker-Wheeler motor generator set and one eight-panel switchboard.

The Board of Control of Winnipeg, Man., will receive bids until March 24 for a 2,500,000-gal. turbine pump with motor for the city water works.

For the purpose of furnishing power to pump water for the irrigation of a tract of 15,000 acres located in the Stone Corral country, the San Joaquin Light & Power Company contemplates the extension of its transmission lines into that territory for a distance of about 21 miles. In submitting this information A. G. Wishon, manager of the company, states that a substation will also be located about 16 miles from Dinuba, near the Docker Place.

The Hillsboro Light & Power Company, Hillsboro, Wis., has been incorporated, with a capital stock of \$10,000. Rollin F. Myers is president; O. J. Kauffman, secretary.

The town of Lamoni, Iowa, has under consideration a proposition to establish a municipal water works system, the estimated cost of which is \$25,000. The matter will be determined at an election to be held during the present month. The engineers in charge are W. K. Palmer & Co., Kansas City, Mo.

Plans and specifications are in course of preparation for a municipal electric light plant for Farmington, Mo., the cost of which is estimated at \$25,000. It is expected that plans will be completed and submitted for bids about April 1. The engineer in charge of this work is Thomas B. Carter.

A. E. Stein writes that the Rocky River Water, Light & Power Company, Rocky River, Ohio, of which he is superintendent, contemplates the installation of new dynamos in its plant for the purpose of lighting the town.

It is stated by Paul Smyly, secretary-treasurer of the Two Republics Mining Company, Jerome, Yavapai County, Ariz., that the company will install an electric plant early in the summer to run drills and pump air in the tunnel. There is a water head of 15 hp. on the property, which will be utilized for the generation of motive power. Work is in progress on a 700-ft. tunnel, 6 x 4½ ft. in the clear, and in the near future 1200 ft. will be driven, which will tap the ledge at about 1000 ft. in depth.

The Philadelphia Compress Company, Philadelphia, Miss., has in contemplation the erection of an electric light plant, plans for which are being prepared.

The Mineral Railroad Company, the Street Railway Company and the plant of the Industrial Electric Company, Chihuahua, Mexico, have been taken over by and merged into the Campaña Eléctrica y de Ferrocarriles de Chihuahua, S. A., which has been organized with a capital of \$2,200,000. It is the purpose of the new company to convert the Mineral Railroad from a steam to an electric line, and also to operate all of the city lines by electricity. A plant with a capacity to serve these companies and furnish current for lighting will be built. The president of the company is Enrique C. Creel; general manager, A. C. Nash.

F. R. Chinnock of the electrical department of the New York office of the B. F. Sturtevant Company reports as follows some recent sales of electrical generating sets, consisting of engines and directly connected generators, both of the hori-



zontal and vertical type: Board of Water Supply, Babylon, N. Y., 9 x 8 in. vertical center crank engine, standard slow speed 25-kw. generator; Federal Ice Company, Newark, N. J., 9 x 8 in. vertical engine, 30-kw. generator; Thompson-Starret Company, New York, 8 x 8 in. vertical engine, 25-kw. generator; Eberhard Faber Pencil Company, Brooklyn, N. Y., 16 x 14 in. horizontal engine, 100-kw. generator; American Can Company, Lubec, Maine, 9 x 12 in. horizontal engine, 40-kw. generator; Williams-Balfour Company, New York, for Callao, 13 x 12 in. horizontal engine, maximum English dynamo; New York Steam Company, New York, 8 x 8 in. vertical engine, 25-kw. generator; Andrew McLean Company, Passaic, N. J., 6 x 6 in. vertical engine.

The Parker Boiler Company, Philadelphia, Pa., has recently sold the Quincy Mining Company, Hancock, Mich., three 234-hp. boilers; City Laundry Company, Pueblo, Colo., one 116-hp. boiler; Hawaiian Pineapple Company, Honolulu, T. H., two 122-hp. boilers.

#### Bridges and Buildings.

The Riverside Bridge Company, Martins Ferry, Ohio, has a fair amount of work on hand, including the steel for the new McFadden business block, Wheeling; a gas producer for the Tyler Tube & Pipe Company, Washington, Pa., and 1500 ft. of steel trestle connecting this plant with the Baltimore & Ohio Railroad; some large additions to the plant of the Whitaker Iron Company, Wheeling, and several highway bridges in West Virginia, Ohio and Maryland.

#### Fires.

The blacksmith and machine shops of the Golden Cycle Mill, Victor, Colo., were destroyed by fire February 29, the loss being about \$10,000.

The Southern Stove Works, Evansville, Ind., suffered a \$25,000 loss by fire at its plant.

On March 8 the washing plant of the Dominion Coal Company at Port Morier, N. S., was destroyed by fire, the loss being about \$100,000.

#### Foundries.

The A. Morest Company, Ltd., Jeanerette, La., has been making some improvements in its foundry, including a building 83 x 115 ft., supplied with three cupolas, having a melting capacity of 40,000 lb. per hour.

The Ardmore Foundry, Machine & Bridge Company, Ardmore, Okla., whose present plant consists of one building, 100 x 200 ft., is planning the erection of an extension thereto, work upon which will probably be begun about May.

The Galesburg Malleable Casting Company, Galesburg, Ill., has increased its capital stock from \$60,000 to \$100,000.

#### Hardware.

The Miller Mfg. Company, Monroe, Wis., has been incorporated with a capital of \$30,000 and will erect a plant for the manufacture of buggies, harness and a number of patent specialties. The initial building will consist of a four-story and basement building. The incorporators are Fred. Miller, Percy Holloway and J. C. Cillum.

#### Miscellaneous.

The Parkersburg Mill Company, Parkersburg, W. Va., manufacturer and dealer in poplar and oak lumber, interior finish, brush handles, blocks, &c., whose plant was destroyed by fire December 18, 1907, is arranging to rebuild on the old site. A new 40 x 220 ft. two-story brick and concrete building will be used as a sawmill, in which equipment with a capacity up to 60 ft. long will be installed. A 64 x 200 ft. three-story brick building will serve as a planing mill. This will be equipped with a large timber sizer for surfacing at one time four sides of 16 in. by 30 ft. timbers. A 40 x 40 ft. brick building will be erected for generating power for all of the motor driven machinery, which will be of the best and modern make, capable of turning out a large product. Three dry kilns of brick construction will also be built. The company advises the trade that it will then be in a position to manufacture its full line of supplies made heretofore, especially car and ship oak, the latter in long lengths. Contracts for buildings and machinery have been let, and it is expected that the plant will be in operation in about 90 days.

The Meyerord-Carter Company, Union Trust Building, Parkersburg, W. Va., is erecting a new plant near that place, which will be devoted to the sole manufacture of Vitrolite milk white plates and tiling for structural use. The main building will be 135 x 400 ft., of concrete block construction, and will contain two large annealing kilns, contracts for which have been placed with the H. L. Dixon Company, Pittsburgh; also three 30,000-lb. melting tanks and modern machinery, with individual motor drive. The power house will be 16 x 20 ft., and will also contain modern equipment. This plant will be ready for operation about April 15.

A. V. Kaiser & Co., Philadelphia, Pa., dealers in railroad and contractors' equipment, are in the market for 20 Rodger convertible ballast cars.

The business of the Automatic Specialty Company, Cincinnati, Ohio, has been taken over by the Printing Machinery Com-

pany, which will continue the manufacture of automatic and special paper goods and printing machinery under the same management as heretofore.

The Smith Machinery Company, Milwaukee, Wis., manufacturer of concrete mixers, has amended its articles of incorporation, increasing its capital stock from \$15,000 to \$125,000.

Robert Wilkinson, Poughkeepsie, N. Y., has been appointed receiver for the New York Power & Truck Company, manufacturer of car trucks, automobiles and accessories, whose plant is located at Kingston, N. Y. It is stated that the assets amount to \$75,000.

The Denver Gas & Electric Company, Denver, Colo., is arranging for extensions to its plant during the coming summer, which will involve the expenditure of about \$50,000. Practically all of this sum will be applied to the improvement of the gas department, which will include a stack of 10 benches, six retorts each, together with the necessary ironwork required. An operating floor, constructed of I-beams and steel plates, will also be built. About \$20,000 of the above sum will be devoted to the extension of street mains, meters, &c. L. E. Malone is superintendent of the gas department.

Bonds to the amount of \$150,000 have been authorized by the city of Jugo, Okla., for the purpose of securing funds to construct a water works system.

L. A. & W. F. Briggs, electrical contractors, Fond du Lac, Wis., have been succeeded by the Briggs Electric Company, recently incorporated with a capital stock of \$15,000. The officers of the new company are as follows: Robert T. Mellis, president; L. A. Briggs, vice-president and superintendent; W. F. Briggs, secretary and treasurer.

The Massachusetts Fan Company, Watertown, Mass., is furnishing waste heat drying apparatus for the Paterson Clay Products Company, Clearfield, Pa. This apparatus, consisting of a 140-in. three-quarter housed steel plate fan, with water jacketed box, driven by a 9 x 12 in. direct connected horizontal engine, is to be applied to operate an eight-tunnel dryer. Each tunnel will be 100 ft. long, the entire dryer having a capacity of 50,000 brick in 24 hr.

The Electric Cable Company, 17 Battery place, New York, whose plant at Bridgeport, Conn., was partially destroyed by fire, announces that it has made arrangements which will permit of filling all orders received for its various products, including Voltax, the transparent protective compound; rubber covered wires, weatherproof wires and cables, magnet wire, annunciator and office wire, &c. Pending adjustment of insurance details the company will make no announcement of its plans for rebuilding.

The White Oak Mills, controlled by the Proximity Mfg. Company, Greensboro, N. C., has lately entered its third order with the Green Fuel Economizer Company, Matteawan, N. Y., for an equipment of economizers. These mills are the largest denim mills in the world, employing 1300 operatives and working up about 145 bales of cotton per day on the average. The buildings are of the latest improved construction, with saw tooth roofs to secure good lighting, and other modern improvements and machinery. Some of the machines do the work for which 12 persons are required in other mills. Not only is this the third order for Green economizers from the White Oak Mills, but in addition the owners have bought a Green economizer for the Proximity Mills, two for the Minneola Mills and two for the Revolution Mills, making a total equipment of about 8000 hp.

The Petroleum Iron Works Company, Sharon, Pa., builder of all kinds of steel plate construction, has received a contract for the fabrication and erection of 20 stacks, 62 in. in diameter and 120 ft. high, for the new pipe mills being erected by the Youngstown Sheet & Tube Company, at East Youngstown, Ohio. The material is now going through its shops and erection will begin in about a week. The company has also recently received orders for one 55,000-bbl. oil storage tank for the Owasso Oil Company, Sapulpa, Okla.; 15 oil tanks, 8 ft. in diameter and 30 ft. long, and one stack, self-supporting, 4 ft. 6 in. in diameter and 80 ft. high, for the Texas Company, to be erected in Texas, and also contracts for two Blake asphalt and concrete mixers for the same company.

The Oliver Iron & Steel Company, Pittsburgh, has received a number of orders from the Isthmian Canal Commission for nuts, bolts, and other products.

Citizens of Middletown, Pa., are considering plans for the formation of a company to erect and operate a pipe and pipe bending plant near that town. Thomas Holland of Royaltown, Pa., has offered to give 2 acres of ground for the plant along the Pennsylvania Railroad.

The day turn at the cotton tie mill of the Pittsburgh Steel Company, Glassport, Pa., recently turned out 1729 bundles of cotton ties, and the night turn following turned out 1793 bundles, this output breaking all previous rolling records at the plant.

## The Iron and Metal Trades

The movement among some of the railroad interests to establish an advance of about 10 per cent. in rates comes at a singularly inopportune time from many points of view. If seriously attempted it would certainly meet with very vigorous opposition on the part of shippers. So far as can be learned, only a minority is inclined to commit itself to so shortsighted a policy.

The week has been very barren of new business in the Iron and Steel trade at large, and while this is a disappointment, the increased confidence in a moderate and sustained betterment is maintained. It seems to be a question of patience above all.

Very little is being done in Pig Iron for any use. The inquiries are small and the buying is timid. What sales are effected, under competitive conditions, go to those who are willing to make concessions. Those furnaces which decline to shade prices are favored with orders only when it is a question of brand. Yet stocks are only accumulating very slowly.

The only Rail order of any consequence placed during the week was for 10,000 tons for the Reading, which was allotted to two mills. It is true that the order for 55,000 tons of Steel Rails for the Pennsylvania Railroad, distributed among a number of the mills some time since, has not been accepted by them as yet. There are details to be adjusted before the orders are accepted, although the work would be particularly welcome at this time.

The largest order for Structural Material placed during the current week was that for 2500 tons for the New Haven at Providence. Otherwise the tonnage placed was moderate. The fabricators are figuring very closely.

The Wire trade is quite busy and goods are being manufactured for stock in anticipation of the opening of the spring trade. The plant of the Morgan Spring Company at Struthers, Ohio, has been purchased by the Youngstown Sheet & Tube Company, which brings that concern into the Wire trade. The purchaser will double strand the Rod mill at once, which will carry the capacity up to about 8000 tons per month. The Sheet trade is gaining a little, while the Tin Plate trade is seasonably busy. The leading interest has 67 per cent. of its Tin Plate capacity at work.

In the Tube trade the report is current that an Eastern mill has taken an order for 25 miles of 8-in. Line Pipe. Specifications are coming in rather slowly in the Merchant Steel trade, and Iron and Steel Bars are quiet.

The shipyards are figuring on some steamers for the coastwise trade. They need work badly.

In the Cast Iron Pipe trade there is in sight about 50,000 tons, contingent in many cases upon the successful placing of municipal bonds.

Outside of some inquiries for Old Car Wheels for shipment abroad, for which good prices are bid, there seems to be little chance for export of Old Material at the present time.

## A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,  
Declines in Italics.

At date, one week, one month and one year previous.

	Mar.11, 1908.	Mar.4, 1908.	Feb.12, 1908.	Mar.13, 1907.
<b>PIG IRON.</b> Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia .....	\$18.25	\$18.25	\$18.25	\$25.25
Foundry No. 2, Southern, Cincinnati .....	15.75	15.75	15.75	26.00
Foundry No. 2, Local, Chicago ..	17.50	17.50	18.00	25.50
Bessemer, Pittsburgh .....	17.90	17.90	17.90	22.85
Gray Forge, Pittsburgh .....	15.90	15.90	16.00	21.85
Lake Superior Charcoal, Chicago	21.50	21.50	21.50	27.00

<b>BILLETS, &amp;c.,</b> Per Gross Ton:				
Bessemer Billets, Pittsburgh ..	28.00	28.00	28.00	29.00
Forging Billets, Pittsburgh ..	30.00	30.00	30.00	36.00
Open Hearth Billets, Phila. ....	30.40	30.40	30.40	33.00
Wire Rods, Pittsburgh .....	35.00	35.00	35.00	37.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

<b>OLD MATERIAL,</b> Per Gross Ton:				
Steel Rails, Melting, Chicago ..	12.25	12.25	13.00	18.00
Steel Rails, Melting, Phila. ....	13.00	14.00	14.00	19.25
Iron Rails, Chicago .....	15.75	16.00	17.50	25.00
Iron Rails, Philadelphia .....	18.00	18.00	18.00	27.00
Car Wheels, Chicago .....	15.50	15.50	18.50	24.00
Car Wheels, Philadelphia .....	16.00	16.00	17.00	23.25
Heavy Steel Scrap, Pittsburgh ..	13.00	13.75	14.00	18.00
Heavy Steel Scrap, Chicago .....	11.50	11.50	12.50	16.00
Heavy Steel Scrap, Philadelphia.	13.00	14.00	14.00	19.00

<b>FINISHED IRON AND STEEL,</b>				
Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia.	1.65	1.65	1.65	1.93½
Common Iron Bars, Chicago ..	1.65	1.65	1.65	1.81½
Common Iron Bars, Pittsburgh.	1.50	1.50	1.50	1.80
Steel Bars, Tidewater, New York	1.76	1.76	1.76	1.74½
Steel Bars, Pittsburgh .....	1.60	1.60	1.60	1.60
Tank Plates, Tidewater, New York	1.86	1.86	1.86	1.84½
Tank Plates, Pittsburgh .....	1.70	1.70	1.70	1.70
Beams, Tidewater, New York ..	1.86	1.86	1.86	1.84½
Beams, Pittsburgh .....	1.70	1.70	1.70	1.70
Angles, Tidewater, New York ..	1.86	1.86	1.86	1.84½
Angles, Pittsburgh .....	1.70	1.70	1.70	1.70
Skelp, Grooved Steel, Pittsburgh	1.70	1.70	1.70	1.90
Skelp, Sheared Steel, Pittsburgh.	1.80	1.80	1.80	2.00

<b>SHEETS, NAILS AND WIRE,</b>				
Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh .....	2.40	2.40	2.40	2.50
Wire Nails, Pittsburgh .....	2.05	2.05	2.05	2.00
Cut Nails, Pittsburgh .....	1.90	1.90	2.00	2.05
Barb Wire, Galv., Pittsburgh ..	2.50	2.50	2.50	2.45

<b>METALS,</b> Per Pound:				
	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York .....	12.62½	12.50	13.37½	25.50
Electrolytic Copper, New York ..	12.50	12.37½	13.37½	25.37½
Spelter, New York .....	4.75	4.75	4.90	6.95
Spelter, St. Louis .....	4.60	4.60	4.75	6.80
Lead, New York .....	3.75	3.75	3.75	6.35
Lead, St. Louis .....	3.60	3.60	3.75	6.10
Tin, New York .....	29.25	30.25	29.50	42.25
Antimony, Hallett, New York ..	9.00	9.00	9.00	23.50
Nickel, New York .....	45.00	45.00	45.00	45.00
Tin Plate, 100 lb., New York ..	\$3.89	\$3.89	\$3.89	\$4.09

## Chicago.

FISHER BUILDING, March 11, 1908.—(By Telegraph.)

Closely as the markets are being scanned for signs of general improvement of a permanent and positive character, developments of the past week have unfolded nothing of striking importance in this direction. At the same time the situation is not without certain features of encouragement. For instance, it is noted that requests for prompt shipment now accompany nearly all specifications and orders for material, from which it is inferred that stock supplies in the hands of consumers are running low. This is particularly the case with the railroads, whose orders for track and store supplies are gradually increasing. Added to orders of fair tonnage noted in last week's report, the principal interest has booked an aggregate of 6000 kegs of Spikes. The Light Rail mill at the South Works of the Illinois Steel Company was started up this week with a moderate amount of specifications already in hand. All departments at Joliet are this week in operation, except the merchant mills. Railroad bridge construction continues to supply the major part of new business coming to fabricating shops, there being but few building structures included in the total tonnage. Of the several important building projects in contemplation, only that of the La Salle Hotel seems to be taking definite form, promising early closure of contract for Structural Material. The 8000 tons required for this building is expected in the market at an early date. In the shifting and intermittent operation of the various Western merchant Bar mills, the aggregate output remains



about the same. The demand for Iron Bars is, perhaps, a little stronger than for Steel, but in neither is it great enough to engage more than a small part of mill capacity. New Plate business is extremely backward in coming out, what little there is being comprised almost wholly of quick orders for current consumption. There is, however, no apparent effort on the part of producers to force business, and save for moderate concessions on specifications within the range of capacity of some of the smaller mills, prices are firm. Other lines of finished and semifinished material are not notably changed, either as respects price or demand. Considerable notice has been taken of recent inquiries in this market for upward of 10,000 tons of Basic Iron, but they have been generally regarded as being of a more or less tentative character, and it is now stated that the proposed purchases have been indefinitely postponed. The immediate development of large tonnage requirements by the big Steel casting foundries is not indicated by the present rate of consumption. The demand for metals has been somewhat better for the past week, within which time orders for Ingot Copper, though comparatively small in quantity, have been coming in more freely.

**Pig Iron.**—There is nothing to be gleaned in any quarter of the market that reflects a fair semblance of activity. No orders of good size are reported, and the few lots of small tonnage changing hands are almost invariably for immediate shipment to cover casting contracts as they develop. Even the large melters, who are occasionally in the market for current requirements, seem to be buying in the same way, the American Car & Foundry Company, for instance, being in the market this week for 200 tons of No. 2 Foundry. One inquiry for 1000 tons and another for 2000 tons, the latter for last half delivery, are reported, but it is doubtful if they represent anything more tangible than a desire on part of the consumer to keep in touch with the trend of prices. The same may be said respecting the widely mentioned inquiries for from 5000 to 10,000 tons of Basic Iron from large Steel foundry interests here and in St. Louis. None of this tonnage has, as yet, been placed, but when it is recalled that a similar inquiry several weeks ago finally resulted in a purchase of 500 tons, these incidents seem to have but little market significance. A majority of the business comprising standard fracture grades of No. 2 Foundry is being made on a basis of \$13, Birmingham, but on some lots of off grade Iron of 200 tons and under, sold by analysis, \$12.50, and even \$12, has been done. Production in the Northern District is limited to the output of four or five furnaces, and even this limited capacity is in excess of consumption at the present time. There is no dissent from the opinion that the aggregate business of last week was one of the lightest of the present year. The following prices are for March delivery, f.o.b. Chicago:

Lake Superior Charcoal.....	\$21.50 to \$22.00
Northern Coke Foundry, No. 1.....	18.00 to 18.50
Northern Coke Foundry, No. 2.....	17.50 to 18.00
Northern Coke Foundry, No. 3.....	17.00 to 17.50
Northern Scotch, No. 1.....	18.50 to 19.00
Southern Coke, No. 1.....	17.85 to 18.35
Southern Coke, No. 2.....	17.35 to 17.85
Southern Coke, No. 3.....	16.85 to 17.35
Southern Coke, No. 4.....	16.35 to 16.85
Southern Coke, No. 1 Soft.....	17.85 to 18.35
Southern Coke, No. 2 Soft.....	17.35 to 17.85
Southern Gray Forge.....	15.35 to 15.85
Southern Mottled.....	15.10 to 15.60
Malleable Bessemer.....	17.50 to 18.00
Standard Bessemer.....	19.40 to 19.90
Jackson Co. and Kentucky Silvery, 6 %	20.40 to 20.90
Jackson Co. and Kentucky Silvery, 8 %	22.40 to 22.90
Jackson Co. and Kentucky Silvery, 10 %	24.40 to 24.90

(By Mail.)

**Billets and Rods.**—With no orders or inquiries of consequence coming in for Billets, lethargy of movement continues a ruling feature of the market. On the very meager tonnage changing hands no further indications of irregularity in prices have developed, and we are advised that the regular quotations of \$33 to \$34, Chicago, are being firmly maintained. Only a moderate demand for Wire Rods is reported, on which prices continue firm at the following quotations: Bessemer, \$35; Basic, \$36; Chain, \$37, all at Pittsburgh.

**Rails and Track Supplies.**—While no new Rail tonnage has been added to the purchases recently noted, a fair amount of orders for Track Supplies keeps coming in. Among those received by the principal interest this week are orders for 175 tons of Screw Spikes for the Chicago City Railway, probably for use in connection with the 8000 tons of high section Tee Rails ordered from the Lorain Steel Company about a month ago; also 3500 kegs of Standard Spikes from another source. The prospects of a better demand for railroad supplies is held out by the fact that prompt shipments are being asked on nearly all orders placed. This would indicate that railroad store stocks are depleted and orders must, therefore, be placed for needs as they arise. Quoted prices of Light Rails continue to be shaded from \$3 to \$5 a ton by Re-rolling mills. We quote as follows: Angle Bars, accompanying Rail orders, 1908 delivery, 1.65c.; car lots, 1.75c. to 1.85c.; Spikes, 1.90c. to 2c., according to delivery; Track Bolts, 2.40c. to 2.50c., base, Square Nuts, and 2.55c. to 2.65c., base, Hexagon Nuts. The store prices on Track Supplies

range from 0.15c. to 0.20c. above mill prices. Light Rails, 25 to 45 lb., \$28; 20-lb., \$29; 16-lb., \$30; 12-lb., \$31. Standard Sections, \$28, f.o.b. mill, full freight to destination.

**Structural Material.**—A good many inquiries are being received, but most of them have to do with the smaller projects requiring light tonnage. Contract closures for last week embraced no undertakings of particular note, nor were there many of them. A purchase of 1000 tons of bridge material was equally divided by the Chicago, Milwaukee & St. Paul Railroad between the Wisconsin Bridge & Iron Company and the Fort Pitt Bridge Company. Now that the general contract for the La Salle Hotel has been let, fabricators are anxiously awaiting the award of the Structural Material, which will include about 8000 tons. Several sets of figures have already been submitted by fabricators on this work, both on the original and revised plans. Of the 1000 tons included in orders taken by the principal interest in Western territory last week, 800 tons was for building structures, showing a better ratio of tonnage for requirements of this character. Prices from store are quoted without change at 2.05c. to 2.10c., and mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.88c.; Angles, 3 to 6 in., 1/4-in. and heavier, 1.88c.; larger than 6 in. on one or both legs, 1.98c.; Beams, larger than 15 in., 1.98c.; Zees, 3 in. and over, 1.88c.; Tees, 3 in. and over, 1.93c., in addition to the usual extras.

**Plates.**—New business continues quiet, and lags somewhat behind other mill products in the development of tonnage. Both the Universal and Sheared Plate mills of the Illinois Steel Company are down, awaiting a supply of specifications sufficient to warrant a resumption of operations. Store business is principally comprised of small lots representing shop needs occasioned by the contract requirements as they arise. Buying all along the line is held closely to current necessities. We quote, for shipment from mill, as follows: Tank Plates, 1/4-in. and heavier, wider than 6 1/2 and up to 100 in. wide, inclusive, car lots, Chicago, 1.88c. to 2.08c.; 3-16 in. 1.98c. to 2.18c.; Nos. 7 and 8 gauge, 2.03c. to 2.23c.; No. 9, 2.13c. to 2.33c.; Flange quality, in widths up to 100 in., 1.98c. to 2.08c., base, for 1/4-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.98c. to 2.18c.; Flange quality, 2.08c. Store prices on Plates are as follows: Tank Plates, 1/4-in. and heavier, up to 72 in. wide, 2.10c. to 2.20c.; from 72 to 96 in. wide, 2.20c. to 2.30c.; 3-16 in. up to 60 in. wide, 2.20c. to 2.35c.; 72 in. wide, 2.40c. to 2.50c.; No. 8 up to 60 in. wide, 2.20c. to 2.25c.; Flange and Head quality, 0.25c. extra.

**Sheets.**—Slight improvement is noted in the demand for Galvanized Sheets from manufacturers engaged in making up stock for forward requirements. Some business of this character received during the week from makers of gutter spout and roofing have helped to swell, in a moderate degree, the aggregate of tonnage booked. Hand to mouth buying in small lots from jobbers' stocks indicates the prevalence of conservatism among consumers, who are evidently not inclined to discount the future by buying for forward requirements. There is, if anything, more activity in Light Sheets, both Black and Galvanized, than in the heavier gauges. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 1.98c.; No. 12, 2.05c.; No. 14, 2.08c.; No. 16, 2.18c.; Box Annealed, Nos. 17 to 21, 2.43c.; Nos. 22 to 24, 2.48c.; Nos. 25 to 26, 2.53c.; No. 27, 2.58c.; No. 28, 2.68c.; No. 29, 2.78c.; No. 30, 2.88c.; Galvanized Sheets, Nos. 10 to 14, 2.63c.; Nos. 15 and 16, 2.83c.; Nos. 17 to 21, 2.98c.; Nos. 22 to 24, 3.13c.; Nos. 25 and 26, 3.33c.; No. 27, 3.53c.; No. 28, 3.73c.; No. 30, 4.23c. Black Sheets from store: Blue Annealed, No. 10, 2.20c.; No. 12, 2.25c.; No. 14, 2.30c.; No. 16, 2.40c.; Box Annealed, Nos. 18 to 21, 2.60c.; Nos. 22 to 24, 2.65c.; No. 26, 2.70c.; No. 27, 2.75c.; No. 28, 2.85c.; No. 30, 3.25c.; Galvanized from store: Nos. 10 to 16, 3c.; Nos. 18 to 20, 3.15c.; Nos. 22 to 24, 3.30c.; No. 26, 3.50c.; No. 27, 3.70c.; No. 28, 3.90c.; No. 30, 4.40c. to 4.45c.

**Bars.**—About the same proportion of Bar mill capacity is engaged this week as has been operating for the past 10 days or two weeks. Specifications on Bar Iron contracts are coming in a little more freely than for Steel Bars, but new business on both is developing very slowly. The fact that in nearly all cases Bar specifications are accompanied by requests for prompt shipment indicates very clearly that stocks in the hands of consumers are at a low ebb, and any quickening of consumptive demand will be promptly reflected in a better flow of orders. Quotations, Chicago, are as follows: Steel Bars, 1.78c., with half extras; Iron Bars, 1.65c.; Hoops, 2.18c., extras as per Hoop card; Bands, 1.78c., as per Bar card, half extras; Soft Steel Angles and Shapes, 1.88c., half extras. Store prices are as follows: Bar Iron, 2.10c. to 2.25c.; Steel Bars, 2c. to 2.10c.; Steel Bands, 2c., as per Bar card, half extras; Soft Steel Hoops, 2.35c. to 2.45c., full extras.

**Merchant Pipe.**—Owing to the gradual depletion of jobbers' stocks, orders for replenishment seem to be increasing in number and volume, but general stock orders of notable size are still slow in coming out. An improvement is also noted in the demand from small consumers, which is being

stimulated to some extent by better weather conditions and more activity in outside construction. A little reaction from the extreme low level of store prices is noted, but there is considerable room for improvement in this respect. Mill prices on Steel Pipe continue firm, though concessions of from 1 to 2 points are being offered on Iron Pipe. The following mill discounts are quoted: Black Pipe,  $\frac{3}{4}$  to 6 in., 71.2; 7 to 12 in., 68.2; Galvanized,  $\frac{3}{4}$  to 6 in., 61.2. These discounts are subject to one point on the base. From store, in small lots, Chicago jobbers quote 72 to 72½ per cent. on Black Steel Pipe,  $\frac{3}{4}$  to 6 in. From 2 to 3 points above these prices is asked for Iron Pipe.

**Boiler Tubes.**—The development of new business shows but little if any improvement in mill shipments. Consumers' wants, which continue very moderate, are being supplied largely from store stocks. Some rumors of unevenness in prices are heard, but as a matter of fact there is hardly enough business moving to tempt a departure from regular schedules. Mill quotations for future delivery, on the base sizes, are as follows: 2½ to 5 in., in carload lots, Steel Tubes, 63.2; Iron, 50.2; Seamless, 49.2; 2½ in. and smaller, and lengths over 18 ft., and 2½ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to 1½ in. ....	35	35	35
1½ to 2¼ in. ....	50	35	35
2¼ in. ....	52½	35	35
2½ to 5 in. ....	60	47½	47½
6 in. and larger. ....	50	35	..

**Merchant Steel.**—There is but little demand for miscellaneous shapes used by implement makers, but specifications for Tire sizes from wagon and carriage builders are being offered a little more freely. On the moderate orders coming out for Shafting the regular prices here quoted are frequently shaded from 5 to 10 per cent. Quotations are as follows: Planished or Smooth Finished Tire Steel, 1.98c.; Iron Finish up to 1½ x ½ in., 1.93c., base, Steel card; Iron Finish, 1½ x ½ in. and larger, 1.78c., base, Tire card; Channels for solid Rubber Tires, ¾ to 1 in., 2.28c., and 1½ in. and larger, 2.18c.; Smooth Finished Machinery Steel, 2.18c.; Flat Sleigh Shoe, 1.93c.; Concave and Convex Sleigh Shoe, 2.08c.; Cutter Shoe, 2.46½c.; Toe Calk Steel, 2.33c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7¼c. to 8c., and still higher prices are asked on special grades. Shafting, 54 per cent. off in car lots; 48 per cent. less than car lots, base territory delivery.

**Old Material.**—Following last week's recession in Scrap values, the market has steadied somewhat, and but few grades are this week reported decidedly weaker. Iron Fish Plates, Railroad Springs and Turnings are a little lower. It is understood that very little of the 7500 tons offered last week by the Great Northern was sold, since the prices tendered were considered inadequate. On the other hand, a smaller tonnage offered by the Illinois Central brought fair prices and was taken principally by dealers, presumably to apply on unfilled contracts. Sharply divergent views are entertained as to the future course of the market by various interests, but it is a well established fact that the demand from consumers has not materially increased. The Santa Fe is offering 3600 tons, which will be closed early this week; included in this material are 1000 tons of Railroad Wrought. In addition to this, there are lists out from the Chicago, Milwaukee & St. Paul, 2000 tons, and the Wabash, 2200 tons, more than half of which is composed of Re-rolling Rails. The Wisconsin Central is also offering a moderate list of material. We quote per gross ton, f.o.b. Chicago, as follows:

Old Iron Rails. ....	\$15.75 to \$16.25
Old Steel Rails, re-rolling. ....	12.25 to 12.75
Old Steel Rails, less than 3 ft. ....	12.25 to 12.75
Relaying Rails, standard sections, sub- ject to inspection. ....	20.50 to 21.50
Old Car Wheels. ....	15.50 to 16.00
Heavy Melting Steel Scrap. ....	11.50 to 12.00
Frogs, Switches and Guards, cut apart. ....	11.75 to 12.25
Mixed Steel. ....	9.00 to 9.50

The following quotations are per net ton:

Iron Fish Plates. ....	\$13.50 to \$14.00
Iron Car Axles. ....	16.25 to 16.75
Steel Car Axles. ....	14.75 to 15.25
No. 1 Railroad Wrought. ....	11.50 to 12.00
No. 2 Railroad Wrought. ....	10.50 to 11.00
Railway Springs. ....	10.75 to 11.25
Locomotive Tires, smooth. ....	14.25 to 15.25
No. 1 Dealers' Forge. ....	9.00 to 9.50
Mixed Bushing. ....	7.75 to 8.25
Iron Axle Turnings. ....	6.75 to 7.25
Soft Steel Axle Turnings. ....	6.75 to 7.25
Machine Shop Turnings. ....	6.75 to 7.25
Cast Borings. ....	4.75 to 5.25
Mixed Borings, &c. ....	4.75 to 5.25
No. 1 Mill. ....	7.00 to 7.50
No. 2 Mill. ....	6.00 to 6.50
No. 1 Boilers, cut to Sheets and Rings. ....	7.00 to 7.50
No. 1 Cast Scrap. ....	12.25 to 13.00
Stove Plate and Light Cast Scrap. ....	10.25 to 10.75
Railroad Malleable. ....	10.00 to 10.50
Agricultural Malleable. ....	9.50 to 10.00
Pipes and Flues. ....	8.50 to 9.00

**Cast Iron Pipe.**—Nearly all of the small lettings noted in last week's report, which aggregated about 4000 tons, have

been closed. The principal tonnages embraced in these transactions were those taken by Waukesha, Wis., and Grand Rapids, Mich., each amounting to 700 tons. The only new business reported are small lots advertised for letting by the cities of Fort Wayne and Milwaukee. We continue to quote per net ton, Chicago, as follows: Water Pipe, 4-in., \$30; 6 to 12 in., \$29; 16-in. and up, \$28, with \$1 extra for Gas Pipe.

**Metals.**—The past week has developed considerably more business, as well as a better line of inquiries, for nearly all metals. While the orders, as a rule, are not large and are principally confined to current requirements, their greater frequency is an encouraging feature. Very little change is noted in the prices of either new or old material. We quote as follows: Casting Copper, 13c.; Lake, 13½c. to 13¾c., in car lots for prompt shipment; small lots, ¼c. to ¾c. higher; Pig Tin, car lots, 32c.; small lots, 31½c.; Lead, Desilverized, 3.95c. to 4c., for 50-ton lots; Corroding, 5.15c. to 5.25c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 5c.; Cookson's Antimony, 13c., and other grades, 11c. to 11½c.; Sheet Zinc is \$7 list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 12¾c.; Heavy Copper, 12¾c.; Copper Bottoms, 11c.; Copper Clips, 11c.; Red Brass, 12½c.; Yellow Brass, 10¼c.; Light Brass, 6½c.; Lead Pipe, 3¾c.; Zinc, 3¾c.; Pewter, No. 1, 21c.; Tin Foil, 23c.; Block Tin Pipe, 25c.

## Pittsburgh.

PARK BUILDING, March 11, 1908.—(By Telegraph.)

**Pig Iron.**—The Pig Iron market continues quiet, inquiries being mostly for small lots for prompt shipment. One inquiry is reported for 1500 tons of Basic for April, and the same quantity for May, and this will probably bring out some pretty low prices. Consumers who are willing to buy Iron for any considerable time ahead make such low offers for it that furnaces will not consider them. Prices are practically unchanged, but the demand is not enough to actually test the market. Standard Bessemer Iron is still held at \$17, Valley furnace, but several small lots have sold as low as \$16.85 to \$16.90, at furnace. Northern No. 2 Foundry is held at \$15.75 to \$16, at Valley furnace, but a sale of 1000 tons is reported at \$15.50, the buyer getting this low price by agreeing to take the Iron out this and next month. Northern Forge Iron is held nominally at \$15, at Valley furnace, or \$15.90, Pittsburgh, but no sales have been made in this market for some time.

**Steel.**—A moderate amount of new business is being taken by the mills in Sheet and Tin Bars, and specifications against contracts are coming in more freely. There is not much inquiry for Billets, and the regular sellers state they are maintaining prices, quoting Bessemer and Open Hearth Billets at \$28, Sheet and Tin Bars at \$29.50, and Forging Billets at \$30, for delivery in Pittsburgh and nearby districts.

(By Mail.)

The Steel trade is still very quiet, and in some quarters the opinion is expressed that actual conditions to-day are not as good as they were in the latter part of February. However, there is no doubt that with three or four weeks of milder weather, and the resumption of outdoor operations, there will be an improvement in the demand for nearly all kinds of Finished Iron and Steel, particularly such lines as enter into building construction. Reports from the Car Service Association are that 2300 more cars were in service on March 1 than on February 1, showing that the number of cars in actual use is steadily increasing. There is very little movement in Pig Iron, and prices show no betterment, but a fair movement is observed in Sheet and Tin Bars. In Structural Material, Plates and Iron and Steel Bars very little new business is being placed, but in Tin Plate, Sheets and Pipe, mill orders are increasing. The Coke trade is practically lifeless, and the Scrap trade has quieted down, while prices have gone off to some extent.

**Ferromanganese.**—We do not hear of any recent sales, and we quote foreign 80 per cent. Ferro at \$44.50 to \$45, Baltimore, the freight to Pittsburgh being \$1.95 a ton.

**Muck Bar.**—No sales have been reported for some months, and, in the absence of demand, prices are weak. We quote best grades of Muck Bar, made from all Pig Iron, at nominally \$27 to \$27.50, Pittsburgh.

**Sklp.**—We note a recent sale of 1000 tons of Grooved Steel Skelp on the basis of 1.60c., Pittsburgh. The general demand is quiet, and none of the Skelp mills has enough



work to run full. We quote nominally as follows: Grooved Steel Skelp, 1.60c.; Sheared Steel Skelp, 1.70c.; Grooved Iron Skelp, 1.80c., and Sheared Iron Skelp, 1.90c., f.o.b. Pittsburgh.

**Rods.**—An item of interest in the Rod trade is the purchase of the plant of the Morgan Spring Company, at Struthers, Ohio, by the Youngstown Sheet & Tube Company, which makes the latter a producer of Wire Rods, Wire and Wire Nails. The plant thus acquired will have an ultimate capacity of 8000 to 10,000 tons per month, the new owner having decided to double strand the Rod mill at once. New demand for Rods is very quiet, and we have not heard of any sales in this market for some time. The American Steel & Wire Company quotes \$35 for Bessemer, \$36 for Open Hearth and \$37 for Chain Rods, f.o.b. Pittsburgh.

**Steel Rails.**—No new business of any moment is being placed. An inquiry is in the market for 6000 tons of Standard Sections for Australia, but has not been closed. Nos. 1, 2 and 3 Rail mills at the Edgar Thomson plant of the Carnegie Steel Company are in operation this week, the No. 3 rolling Light Rails, but these mills are being "gaited," and are only making about 40 per cent. or less of actual capacity. Regular prices on Light Rails, which are still being shaded \$3 to \$4 a ton by the mills rerolling Rails, are as follows: 25 to 45 lb. Sections, \$28; 20-lb., \$29; 16-lb., \$30, and 12-lb., \$32. We quote Standard Sections at \$28, at mill, and Angle Splice Bars at 1.65c., at mill.

**Plates.**—New business and specifications against contracts continue very light. Most of the Plate mills are badly in need of orders, and are operating only to 50 per cent. or less of capacity. With the advent of spring and the resumption of outside work it is believed the demand for Plates will show betterment, as considerable work is in sight, which if put through will need a considerable tonnage of Plates. Prices continue to be shaded to the extent of \$1 to \$2 a ton. We quote: Tank Plates, 1/4-in. thick, 6 1/4 in. up to 100 in. wide, 1.70c., base, at mills, Pittsburgh. Extras over this price are as follows:

	Extra per 100 lb.
Gauges lighter than 1/4-in. to and including 3-16-in.	
Plates on thin edges.....	\$0.10
Gauges Nos. 7 and 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
"A. B. M. A." and ordinary Firebox Steel Plates.....	.20
Still Bottom Steel.....	.30
Marine Steel.....	.40
Shell grade of steel is abandoned.	

**TERMS.**—Net cash 30 days. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes, 14 in. wide down to 6 in. of Tank, Ship or Bridge quality.

**Structural Material.**—Very little new business has been placed in the past week, and inquiries are light. The Pittsburgh Steel Construction Company has taken the Steel, about 300 tons, for an extension to the plant of the Page Woven Wire Fence Company, Monessen, Pa., and the McClintic-Marshall Construction Company has taken a blacksmith shop and machine shop for the National Transit Company, Oil City, Pa., about 250 tons. The two largest local jobs in sight, and which will probably come up before long, are the Pittsburgh & Lake Erie bridge at Beaver, about 17,000 tons, and an extension to the Fort Pitt Hotel in this city, about 1800 tons. Complaint is made over the very low prices at which work is being taken. We quote: Beams and Channels, up to 15 in., 1.70c.; over 15 in., 1.80c.; Angles, 3 x 2 x 1/4 in. thick, up to 6 x 6 in., 1.70c.; 8 x 8 and 7 x 3 1/2 in., 1.80c.; Tees, 3 in. and larger, 1.70c.; Tees, 3 in. and larger, 1.75c.; Bulb Angles and Deck Beams, 2c. Under the Steel Bar card Angles, Channels and Tees under 3 in. are 1.70c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

**Sheets.**—There is some improvement in the demand for both Black and Galvanized Sheets, the American Sheet & Tin Plate Company operating this week 40 per cent. of its Sheet capacity, while the independent Sheet mills also report conditions somewhat better. With three or four weeks of good weather it is confidently believed that the demand for Sheets, particularly for building purposes, would quickly show an increase equal to about double the present demand. Regular prices are as follows: Blue Annealed Sheets, No. 10 and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.60c.; No. 30, 2.70c. Galvanized Sheets: Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.65c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.70c.; No. 30, 3.95c. No. 28 Painted Roofing Sheets, \$1.75 per square, and Galvanized Roofing

Sheets, No. 28, \$3.10 per square, for 2 1/2-in. corrugations. These prices are subject to a rebate of 5c. per 100 lb. to the large trade under the usual conditions, jobbers charging the usual advances for small lots from store.

**Tin Plate.**—Conditions in the Tin Plate trade are steadily showing betterment, the American Sheet & Tin Plate Company operating this week 67 per cent. of its Tin Plate capacity, while the Pope Tin Plate Company, at Steubenville, has started up its 12 hot mills with good prospects for the future, and other Tin Plate concerns report orders as steadily improving. Shipments are increasing, and specifications against some contracts held up some time ago are now coming forward. Regular prices are being firmly maintained. We quote at \$3.70 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, this price being subject to the usual rebate of 5c. per base box in large lots.

**Iron and Steel Bars.**—New business being placed with the mills in both Iron and Steel Bars continues light, and it is estimated that only about 40 per cent., and possibly less, of the Bar mill capacity of the country is active at the present time. Specifications against contracts are not coming in at a satisfactory rate, a good deal of tonnage having been held up on which consumers are not specifying. We quote Iron Bars at 1.50c. for the Pittsburgh District, and 1.47c., Pittsburgh, for Chicago and points further west. Steel Bars remain very firm at 1.60c., Pittsburgh.

**Spelter.**—New business continues very light, and prices are slightly weaker. A sale of 50 tons of prime grade is reported at 4.60c., St. Louis, equal to 4.72 1/2c., Pittsburgh. We quote prime grades of Western Spelter at 4.60c. to 4.65c., East St. Louis, the freight to Pittsburgh being 12 1/2c.

**Hoops and Bands.**—Specifications against contracts placed early in the year are coming in at a fairly satisfactory rate, but practically no new business is being placed with the mills, as most consumers covered their requirements for the current year some time ago. Prices, as reaffirmed in January, and guaranteed against decline, are as follows: We quote Steel Hoops at \$2, base, full Hoop card extras; Steel Bands, \$1.60, base, half Steel card extras, all f.o.b. cars, Pittsburgh, Pa., in carload lots, for delivery during 1908.

**Railroad Spikes.**—The demand continues very quiet, the amount of new business being placed with the mills by the railroads being relatively small. Prices are only fairly strong. We quote Standard sizes of Steel Railroad Spikes at \$1.80, but this price is shaded in competition with Iron Spikes. Prices on the smaller sizes range from \$1.85 to \$1.90 per 100 lb., f.o.b. Pittsburgh.

**Merchant Steel.**—Conditions in this trade do not seem to be as good as they were in the latter part of February. Specifications against contracts have fallen off, and new buying is very light, and is only for small lots for actual needs. Prices on Shafting continue to be shaded from 5 to 10 per cent., regular prices being 54 per cent. off in carloads, and 48 per cent. in less than carloads, but as low as 55 and 2 1/2 per cent. off has been named on single carload lots. There is a fair demand for Spring and Tire Steels, but other grades, including Tool Steels, are dull. Prices are somewhat easier, and we quote nominally as follows: Smooth Finished Machinery Steel, 1.85c. to 2c., depending on quality, Flat Sleigh Shoe, 1.65c. to 1.75c.; Cutter Shoe, 2.15c. to 2.20c.; Toe Calk Steel, 2.10c. to 2.15c.; Railroad Spring Steel, 1.75c. to 1.80c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades, and 10c. and upward for special grades.

**Pipes and Tubes.**—The discount on Steel Pipe of 75 and 5 per cent., given in this report last week, was a typographical error, and should have read 74 and 5 per cent. Prices on Steel Pipe are firm, not having been changed for some months. It is reported that an Eastern mill has taken a contract for about 25 miles of 8-in. Line Pipe. Spang, Chalfant & Co. will start up their large Pipe mill March 16, to work up accumulated orders. This mill has a capacity for rolling up to 24 in. in diameter. There is a fair buying movement in Pipe, but jobbers and consumers seem disposed to limit their purchases to small lots, for actual needs. Net discounts on Steel Pipe to the large trade on 3/4 to 6 in. remain at 74 and 5 per cent. off list, while on Iron Pipe the absolute minimum is 72 and 5 per cent. Discounts on Steel Pipe are as follows:

#### Merchant Pipe.

	Jobbers, carloads. Steel.	Galv.
	Black.	%
1/4 to 1/2 in.....	.65	49
3/8 in.....	.67	53
1/2 in.....	.69	57
3/4 to 6 in.....	.73	63
7 to 12 in.....	.70	55
Extra strong, plain ends:		
1/4 to 3/8 in.....	.58	48
1/2 to 4 in.....	.65	53
4 1/2 to 8 in.....	.61	49
Double extra strong, plain ends:		
1/2 to 8 in.....	.54	43

Discounts on Genuine Iron Pipe are as follows:

	Black.	Galv.
$\frac{1}{8}$ and $\frac{1}{4}$ in.....	63	51
$\frac{3}{8}$ in.....	65	55
$\frac{1}{2}$ in.....	67	61
$\frac{3}{4}$ to 6 in.....	71	53
7 to 12 in.....	68	
Extra strong, plain ends:		
$\frac{1}{4}$ to $\frac{3}{8}$ in.....	56	44
$\frac{1}{2}$ to 4 in.....	63	51
$\frac{3}{4}$ to 8 in.....	59	47
Double extra strong, plain ends:		
$\frac{1}{2}$ to 8 in.....	52	41

**Boiler Tubes.**—Very little buying of Boiler Tubes is being done by the railroads, and the demand for Merchant Tubes is also quiet. Prices are fairly firm, but discounts are sometimes slightly shaded. Discounts on Merchant Tubes for small lots, on which an extra 5 per cent. is allowed in carloads, are as follows:

Boiler Tubes.	Iron.	Steel.
1 to $1\frac{1}{2}$ in.....	42	47
$1\frac{3}{4}$ to $2\frac{1}{4}$ in.....	42	59
$2\frac{1}{2}$ in.....	47	61
$2\frac{3}{4}$ to 5 in.....	52	65
6 to 13 in.....	42	59
$2\frac{1}{2}$ in. and smaller, over 18 ft. long, 10 per cent. net extra.		
$2\frac{3}{4}$ in. and larger, over 22 ft. long, 10 per cent. net extra.		

**Iron and Steel Scrap.**—The demand for Scrap from the mills has fallen off somewhat in the past two weeks, with the result that prices are lower. It is believed, however, that the Scrap trade is on a better basis now than it was when the market was higher, as prices now ruling represent what the mills will pay for Scrap, and not what dealers charge each other. We have reduced prices on nearly all kinds of Scrap from 50c. to 75c. a ton, and now quote, per gross ton, as follows: Heavy Steel Scrap, \$13 to \$13.25; No. 1 Railroad Wrought Scrap, \$14 to \$14.25; No. 1 Cast Scrap, \$15 to \$15.25; Bundled Sheet Scrap, \$10 to \$10.25; Cast Iron Borings, \$7.75 to \$8; No. 1 Busheling Scrap, \$13 to \$13.25; No. 2, \$10.25 to \$10.50; Steel Axles, \$16.50 to \$17; Sheet Bar Crop Ends, \$17 to \$17.25; Low Phosphorus Melting Stock, \$17.25 to \$17.50; Iron Axles, \$20 to \$20.50; Machine Shop Turnings, \$8.75 to \$9; Re-rolling Rails, \$14.25 to \$14.50; Old Steel Rails, short pieces for Open Hearth use, \$13 to \$13.25; Grate Bars, \$13.25 to \$13.50. On March 5 the Pennsylvania Railroad sold a large tonnage of Scrap, among which were the following items: 1800 tons of Re-rolling Rails, \$14; about 500 tons of Heavy Steel Scrap, \$13.25; 300 tons of No. 1 Wrought Scrap, \$14; 100 tons of No. 1 Cast Scrap, \$15.05; 100 tons of Iron Axles, \$20; 150 tons of Cast Iron Borings, \$8.25, delivered; 100 tons of Machine Shop Turnings, \$8.75, all per gross ton.

**Coke.**—There is practically no demand for either Furnace or Foundry Coke, and prices are somewhat weak. Very little strictly Connellsville Furnace Coke is being offered, but Furnace Coke made in the Klondike and Latrobe districts is being offered as low as \$1.60 to \$1.65 at oven. Best grades of 72-hr. Foundry Coke are offered to consumers at \$2.25, and in some cases as low as \$2.15. It is not believed there will be much improvement in the Coke trade for the next month or two at least. About 1200 less ovens are going now than a week or 10 days ago. There are 36,584 ovens in the Upper and Lower Connellsville regions, of which 16,720 were active last week and 19,864 were idle. The output was 157,982 tons, a falling off compared with the previous week of about 23,000 tons.

## Cleveland.

CLEVELAND, OHIO, March 10, 1908.

**Iron Ore.**—According to estimates made by a representative of one of the leading local merchant Ore firms, there is at present on the Lake Erie docks and on furnace stock piles 18,500,000 tons of Ore. About 1,750,000 tons of Lake Superior Ore is being consumed every month by the blast furnaces, and allowing for a slight increase in consumption it is estimated that 4,500,000 tons will be used before the opening of navigation, leaving about 14,000,000 tons on the docks and furnace yards when the movement of this season's Ore can begin. The largest merchant producers are adhering to their plans announced some time ago to mine about 60 per cent. as much Ore as a year ago, and state that their properties are being operated at about that capacity at the present time. Some of the estimates of the amount of Ore that will be brought down the lakes this season, that were made a few weeks ago, have been cut down somewhat, and the present maximum estimates are about 25,000,000 tons. Some Ore firms report considerable improvement in shipping orders, while with others the shipping orders are only slightly better than a month ago. As the Ore movement down the lakes will start late, and the dock space will not be needed for some time, it is expected that furnaces will be slow in ordering shipments on Ore that they do not need. The only inquiry so far for 1908 Ore has not resulted in a sale, and it is thought that it will be well along in the spring before there is any buying movement of importance. We quote Ore prices as follows, at Lake Erie docks, for 1908 delivery, per

gross ton: Old Range Bessemer, \$5; Mesaba Bessemer, \$4.75; Old Range Non-Bessemer, \$4.20; Mesaba Non-Bessemer, \$4; Siliceous Bessemer, \$2.75; Siliceous Non-Bessemer, \$2.35 to \$2.60.

**Pig Iron.**—The market shows no improvement. There is an entire absence of inquiries for any good sized tonnages. The largest sales during the week in this territory were of 100-ton lots, and these were very limited in number. The melt in this territory does not show much if any improvement, and consumers are slow in taking Iron on old contracts. While furnace interests are extending deliveries on old contracts to suit the convenience of consumers, none of these old contracts for high priced Iron has been canceled, as far as can be learned. Consumers, however, are allowed to equalize the price by extending deliveries on contracts and taking half of the Iron they need at the present market price. Shipping orders are coming in much more slowly from the large melters than from the small consumers. The first blast furnace controlled by local interests to start up since the period of depression began is that of the Penn Iron & Coal Company, Canal Dover, Ohio, which will go in blast in a day or two. The recently established price of \$17, at furnace, for delivery in the immediate territory is being firmly maintained, but inquiries in the local market have been for such small tonnages that they have not encouraged price cutting or tested the market. A local interest was a bidder last week on an inquiry from a large pump manufacturer for 2000 tons of Foundry Iron for Eastern consumption. It is reported that of 17 bidders 16 held to the established price, but that the order went to the other one, who made some concession. There are no inquiries for either Southern or Basic Iron. For prompt shipment and for second quarter we quote, delivered, Cleveland, as follows:

Bessemer .....	\$17.90
Northern Foundry, No. 1.....	17.85
Northern Foundry, No. 2.....	17.35
Northern Foundry, No. 3.....	16.85
Southern Foundry, No. 2.....	\$16.85 to 17.35
Gray Forge.....	15.90 to 16.40

**Coke.**—The market continues very quiet and weak. Some Furnace Coke is being sold in small lots for spot shipment at low prices. We quote Connellsville Furnace Coke for spot shipment at \$1.80 to \$1.90, at oven, and Connellsville 72-hr. Foundry Coke at \$2.25 to \$2.40, at oven.

**Finished Iron and Steel.**—No improvement is noted in the demand for any lines of Finished Material, either on current orders or in specifications, and the aggregate volume of business is limited. The feeling regarding an early improvement in the situation cannot be said to be satisfactory. The only transactions of any size reported were two contracts closed by the local representative of a mill for over 1000 tons of Forging Steel Bars for delivery during the balance of the year. There is also an inquiry for 2000 tons of Plates from a fabricating plant in this territory, the plant being a bidder on some export work for which the Plates are needed. Specifications are still coming in quite freely from the implement makers, the majority of whose plants are turning out their normal output. There are also a few inquiries from implement makers for Steel Bars for the balance of 1908 delivery. The new demand for Bars shows no improvement. Consumers of Iron Bars were pretty well covered before the recent advance in price, and practically no new orders are being taken. Local Bar Iron mills are getting enough specifications to keep them running on about half time. The only orders from the railroads are for very limited tonnages. The price of Iron Bars is being maintained, but it is reported that some of the smaller mills are shading the price of special shapes of Steel Bars and for extras. The demand for Rails for new traction projects in this State this year is expected to be light. One or two projects of that kind are being held up at present because the promoters are unable to finance the undertakings owing to the condition of the money market and the caution of investors. Warehouse business is still light, although sales show a slight improvement over January and February. We quote Iron Bars at 1.60c., Cleveland; Steel Bars, 1.70c., Cleveland, for car lots, half extras; Beams and Channels, 1.80c., base, Cleveland, and Plates,  $\frac{1}{4}$ -in. and heavier, 1.80c., Cleveland. We quote Sheets, mill shipments, carload lots, Cleveland, as follows: Blue Annealed, No. 10, 1.90c.; Box Annealed, No. 28, 2.60c.; Galvanized, No. 28, 3.65c. The warehouse price on Steel Bars is 1.80c., and on Iron Bars 1.80c. Beams and Channels from warehouse are 2.10c. to 2.15c., base. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.10c.; Box Annealed, No. 28, 2.70c.; Galvanized, No. 28, 3.85c. Warehouse prices on Boiler Tubes,  $\frac{3}{4}$  to 5 in. are 64 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 67 per cent. discount.

**Old Material.**—The market appears somewhat weaker, and there has been less activity the past week than for some time. This is attributed to the fact that old orders have been pretty well cleaned up, and as a result trading between dealers has fallen off materially. Inquiries from the mills are very scarce, the only buying being in small lots for immediate needs. Under existing conditions dealers are not expecting an improvement in the market soon. Prices re-



main about the same, most quotations still being largely nominal. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails.....	\$11.50 to \$12.00
Old Iron Rails.....	16.00 to 17.00
Steel Car Axles.....	17.00 to 18.00
Old Car Wheels.....	15.50 to 16.00
Relaying Rails, 50 lb. and over.....	22.00 to 23.00
Heavy Melting Steel.....	11.50 to 12.00
Railroad Malleable.....	12.00 to 12.50
Agricultural Malleable.....	11.00 to 12.00
Light Bundled Sheet Scrap.....	8.00 to 9.00

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles.....	\$16.00 to \$16.50
Cast Borings.....	5.00 to 5.50
Iron and Steel Turnings and Drillings.....	7.00 to 8.00
Steel Axle Turnings.....	7.50 to 8.00
No. 1 Bushing.....	11.00 to 11.50
No. 1 Railroad Wrought.....	12.50 to 13.00
No. 1 Cast.....	12.00 to 13.00
Stove Plate.....	10.50 to 11.00
Bundled Tin Scrap.....	8.00 to 9.00

## Philadelphia.

PHILADELPHIA, PA., March 10, 1908.

Conditions in the crude and finished material markets show but little change from week to week. The same hesitating policy on the part of buyers which has characterized business for the past month or two continues, and as yet there is no disposition shown to anticipate requirements to any degree. Notwithstanding the fact that transactions are almost entirely of a small volume individually, there is an undercurrent of hopeful feeling as to the future, not particularly that any very marked gains in tonnage will be made, but rather that the present volume of business will be maintained and that a slow forward movement may continue in the various branches of the trade. Generally speaking, the gain in tonnage during the past week has been small. Improvements are to be noted in some directions, but there are frequent temporary declines which offset to some extent these gains, so that on the whole production goes along at an average of from 40 to 50 per cent. of that at the same time last year. Prices are being well maintained all along the line, even in view of the small volume of business coming out, and at the present writing few weak spots are discernible. Business in all lines will be closely observed during the next 30 days, as it is believed that if we can show a moderate increase or even hold our own in the way of tonnage of orders placed during the month, it will go a great way toward strengthening confidence in the general situation.

**Pig Iron.**—While there has been a little more buying of Pig Iron in some directions, it is fairly well balanced by a falling off in the demand in others, so that the actual volume of business coming out from week to week does not show any material change. Melters in some cases, who took on fair tonnages a week or so ago, are now out of the market, and in the present day method of buying will only come in again when the quantities taken are fairly well worked up. The Pipe foundries that bought moderate lots of local Irons recently, owing—it is said—to non-deliveries on Southern Irons previously purchased, are now getting these Irons more freely, and have consequently made no further purchases. One or two of these foundries are said to be in the market for a fair tonnage, but have not yet placed the business. The bulk of the business done in this territory has been in the Foundry grades. Sales as a rule continue in small lots, ranging from carloads up to 100 tons, at established prices, for delivery in the next 30 or 60 days. The sale of one lot of 500 tons of No. 2 X Foundry, delivery during the next three months, has been reported, while an inquiry for 1000 tons of No. 2 Plain for early delivery is to be noted. Eastern furnacemen hold the prices of these grades pretty firmly. Not so much can be said of some of the Virginia furnaces, which, however, are outsiders as far as the established basis of prices is concerned. Some of these interests are nevertheless holding at the ruling quotations for delivery in this territory, while others appear to be willing to take business at a concession of from 25c. to 50c. a ton. One lot of 200 tons was sold last week at a price equivalent to \$18, delivered, Philadelphia, while it is quite probable that \$17.75 might be done for a fair tonnage. Notwithstanding this softening in the price of Virginia Irons, the tonnage of business done has been extremely light, and hardly worthy of consideration as far as the general market is concerned. Forge Irons have developed a little more activity the past week. One seller made sales aggregating something over 1000 tons, at full prices. Most of the orders were small, although there was one for a fair tonnage. Basic Iron continues a drug on the market, as buyers as a rule are pretty well covered, having heavy quantities still due them on old contracts. One or two mills have been feeling the market, but their idea of prices is far below that which is now established for that grade. Low Phosphorus Iron still continues in demand, but there have been no contracts placed, although it is believed that some business will shortly come out in this grade. There is also some further inquiry for misfit Low Phos-

phorus, but orders are slow in developing. There has been no change in Pig Iron prices as far as Eastern producers are concerned. Quotations against inquiries are at the established basis, although consumers frequently make counter offers of 10c. to 25c. under the prices named, but these are not being met by the leading interests. We quote the following range of prices for delivery in buyers' yards, eastern Pennsylvania and adjoining territory, for the first half of the year:

No. 2 X Foundry.....	\$18.25 to \$18.50
No. 2 Plain.....	17.75 to 18.00
No. 3 Foundry.....	17.25 to 17.50
Gray Forge.....	16.50 to 16.75
Basic.....	17.25
Low Phosphorus.....	23.50 to 24.50

**Ferromanganese.**—While there has been a little more inquiry for Ferro, sales have been extremely light and confined to small tonnages and broken lots. No business of any quantity has developed in this territory. Prices are unchanged, \$45 to \$47, Baltimore, being quoted for small lots.

**Steel.**—The demand for Steel continues extremely quiet. Mills in this territory are running on greatly reduced capacities, as orders received are for small tonnages only, and are confined to prompt shipment. The leading mill in this territory is operating only 20 per cent. of its capacity. Prices, however, are fully maintained, ordinary Rolling Steel being quoted at \$30.40, with Forging Steel at \$32.40 to \$33.40, according to analysis.

**Plates.**—Orders come out rather slowly and are largely of a miscellaneous character. Mills are about able to hold former gains, but show no further increase in tonnage or orders on their books. Quotations are fully maintained, the following range of prices being named for delivery in this territory:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel.....	1.85	1.90
Flange or Boiler Steel.....	1.95	2.05
Commercial Firebox.....	2.05	2.10
Marine.....	2.25	2.30
Locomotive Firebox Steel.....	2.35	2.40
The above are base prices for 3/4-in. and heavier. The following extras apply:		
3-16-in. thick.....	\$0.10	
Nos. 7 and 8, B. W. G.....	.15	
No. 9, B. W. G.....	.25	
Plates over 100 to 110 in.....	.05	
Plates over 110 to 115 in.....	.10	
Plates over 115 to 120 in.....	.15	
Plates over 120 to 125 in.....	.25	
Plates over 125 to 130 in.....	.50	
Plates over 130 in.....	1.00	

**Structural Material.**—There is a fairly even demand, although orders are hardly as large as they were some weeks ago. Individual orders have been small and of a miscellaneous nature, and mills continue in operation at about 50 to 60 per cent. of their capacity. Prices are being fully maintained, 1.85c. to 2c. being quoted, according to specification.

**Sheets.**—New business comes out slowly, and is confined almost entirely to immediate requirements of consumers. No forward business is being placed and mills are unable to gain in their output. Prices remain unchanged. We quote, for mill shipment, with a tenth extra for small lots, as follows: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 to 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

**Old Material.**—Mills show less interest in the market, and business during the week has been extremely quiet. There has been a further decline in prices of Heavy Melting Steel, and the tonnage sold has been small and largely between dealers. The situation continues unsettled, and prices in the leading grades show a further recession. We quote for prompt delivery in buyers' yards, eastern Pennsylvania and adjoining territory, about the following range:

No. 1 Steel Scrap and Crops.....	\$13.00 to \$13.50
Low Phosphorus.....	18.50 to 19.00
Old Steel Axles.....	17.50 to 18.00
Old Iron Axles.....	21.00 to 22.00
Old Iron Rails.....	18.00 to 19.00
Old Car Wheels.....	16.00 to 17.00
Choice No. 1 R. R. Wrought.....	15.50 to 16.00
Machinery Cast.....	15.00 to 15.50
Wrought Iron Pipe.....	12.00 to 12.50
No. 1 Forge Fire Scrap.....	11.50 to 12.00
No. 2 Light Iron.....	9.00 to 10.00
Wrought Turnings.....	9.75 to 10.25
Stove Plate.....	13.00 to 13.50
Cast Borings.....	7.75 to 8.25
Grate Bars.....	12.00 to 13.00

**Bars.**—The amount of new business which mills are taking is extremely small. Buyers are taking only limited quantities for immediate needs, and mills continue to operate irregularly. Prices meanwhile are being fairly well maintained, Refined Iron Bars being quoted by the leading mills at 1.65c., delivered, Philadelphia, and adjoining territory.

**Coke.**—The tonnage of orders placed continues small. Buyers are not inclined to contract under existing conditions, and most of the business taken is for delivery in the near future. Prices are unchanged. We quote Furnace Coke at \$1.75 to \$2.25, at oven, with Foundry Coke at \$2.25 to

\$2.75, at oven. For delivery in the Philadelphia territory the range of prices is as follows:

Connellsville Furnace Coke.....	\$4.05 to \$4.50
Foundry Coke.....	4.50 to 5.00
Mountain Furnace Coke.....	3.75 to 4.10
Foundry Coke.....	4.10 to 4.60

## Cincinnati.

CINCINNATI, OHIO, March 11, 1908.—(By Telegraph.)

While scarcely perceptible to the anxious man of affairs immersed in manufacturing details, incidents of the week in connection with crude and some finished products indicate better feeling. In the line of boilers and throttling engines, products which are marketed largely in the South and Southwest at this time, the gain is visibly marked over the end of 1907. It figures, according to a large manufacturer in this section, about 65 per cent. of the high standard of 1907. There is considerable activity among manufacturers of motors and generators of medium size units, and the medium and smaller jobbing foundries are making inquiries for Pig Iron. A number of rousing meetings in progress to-day at the Hotel Sinton, and all of manufacturers, suggest important pending announcements in the way of rates and perhaps changes in prices. The third meeting of furnacemen from the Hanging Rock District was held here to-day. They are endeavoring to secure a more equitable freight rate on Coke from the Connellsville and Virginia fields to their furnaces. No announcement is obtainable to-night of any concession secured. Another meeting of importance, comprising about 40 representatives of Conductor Pipe and Eaves Trough establishments from as far east as Boston and west as Chicago, are conferring here on matters of reorganization and prices. The organization, which seems to have deteriorated somewhat of late, is to be rejuvenated and probably under a new name, the National Conductor Pipe Association. President W. Edwards of the Edwards Mfg. Company, entertains the representatives to-night at the Grand Opera House. The opening of the week finds buyer and seller nearer in the way of inquiries and possibilities for business, but practically nothing is doing but small purchases ranging from 100 to 200 tons. The mails are of a more encouraging nature, and there is unquestionably more interest manifest. Rumors of \$12 Iron from the Birmingham District are apparently without good foundation, since it is definitely known that a case or two of alleged cutting turned out no sale, but did develop a purchase at \$12.50. The range on Southern No. 2 is therefore \$12.50 to \$13, with an inclination toward the lower price. There have been some few sales of off Iron at \$12, but the tonnage has not been large, and these are designated as odd lots. On Northern No. 2 the price is \$16 to \$16.50, but strong competition with the Southern product has, it is said, shaded the lower figure on certain routings. There is an increased inquiry for Silicon Irons ranging from 5 to 8 per cent., and also a little inquiry for 10 per cent. Bessemer Ferrosilicon, which is quotable at about \$29, Ironton. On the plain Silicons the quoted price for 8 per cent. is \$19, the range being \$1 for the upward units and 50 cents between the lower ones. An inquiry comes to-day for 2000 tons of Southern Basic for a central Ohio Steel maker for April and May delivery. The Pipe making concerns have bought some Iron during the week and, it is said, at bargain prices. Dealers generally believe that the time is ripe for business with the jobbing foundries if anything at all is to be done, for stocks are about depleted in all sections. For immediate delivery and balance of the first half we quote as follows, the freight rate being from the Hanging Rock, Valley and Birmingham districts, respectively, \$1.20, \$1.80 and \$3.25.

Southern Coke, No. 1.....	\$16.25 to \$16.75
Southern Coke, No. 2.....	15.75 to 16.25
Southern Coke, No. 3.....	15.25 to 15.75
Southern Coke, No. 4.....	14.75 to 15.25
Southern Coke, No. 1 Soft.....	16.25 to 16.75
Southern Coke, No. 2 Soft.....	15.75 to 16.25
Southern Coke, Gray Forge.....	14.25 to 14.75
Southern Coke, Mottled.....	13.75 to 14.25
Ohio Silvery, 8 per cent. Silicon.....	20.20 to 20.70
Lake Superior Coke, No. 1.....	17.70 to 18.20
Lake Superior Coke, No. 2.....	17.20 to 17.70
Lake Superior Coke, No. 3.....	16.70 to 17.20
Standard Southern Car Wheel.....	24.25 to 24.75
Lake Superior Car Wheel.....	23.00 to 23.50

(By Mail.)

**Coke.**—The Coke market is very quiet, and dealers anticipate little early improvement. Spot Connellsville Foundry ranges from \$2.25 to \$2.50, at oven. Furnace grades range from \$1.75 to \$2.10, according to period of delivery.

**Finished Iron and Steel.**—The situation is a trifle better, but there is no change in prices. A little larger inquiry is noted for both Iron and Steel Bars, but in the main consumers are still buying very conservatively, and for actual needs only. Dealers quote, f.o.b. Cincinnati, as follows: Iron Bars, carload lots, 1.85c., with half extras; small lots from store, 1.85c., base, one-half extras. Steel Bars, carload lots, 1.75c., base, half extras; small lots from store, 1.85c., base, half extras. Base Angles, carload lots,

1.85c., base; small lots from store, 2.10c. Beams, Channels, and Structural Angles, 1.85c., base; small lots from store, 2.10c. Plates, ¼ in. and heavier, carload lots, 1.85c.; small lots from store, 2.10c. Blue Annealed Sheets (heavy), No. 16, carload lots, 2.15c.; small lots from store, 2.50c. No. 14, carload lots, 2.05c.; small lots from store, 2.40c. No. 10 and heavier, carload lots, 1.95c.; small lots from store, 2.25c. No. 12, carload lots, 2c.; small lots from store, 2.35c. Sheets (light), Black No. 28, carload lots, 2.65c. Galvanized Sheets, No. 28, carload lots, 3.70c. Steel Tire, 4 in. and heavier, carload lots, 1.95c., base. Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.25c.

**Old Material.**—The temporary flurry in the Chicago Scrap market has apparently had no influence locally, and indications point to still lower levels. Such mills as are operating and have exhausted stocks on hand are buying but in very small lots. There is some little inquiry for Relays. The local market is conservatively about as follows, f.o.b. Cincinnati:

No. 1 R. R. Wrought, net ton.....	\$11.00 to \$12.00
Cast Borings, net ton.....	4.50 to 5.00
Steel Turnings, net ton.....	5.00 to 6.00
No. 1 Cast Scrap, net ton.....	12.00 to 13.00
Burnt Cast and Wrought, net ton....	8.00 to 9.00
Old Iron Axles, net ton.....	15.00 to 16.00
Old Iron Rails, gross ton.....	14.00 to 15.00
Old Steel Rails, long, gross ton.....	11.50 to 12.50
Relaying Rails, 56 lb. and up, gross ton.	21.00 to 22.00
Old Car Wheels, gross ton.....	14.00 to 15.00
Low Phosphorus Scrap, gross ton....	13.00 to 14.00

## Birmingham.

BIRMINGHAM, ALA., March 7, 1908.

**Pig Iron.**—The schedule of quotations recently adopted is being adhered to and the distribution of sales made on this basis is indicative of a maintenance, yet the reduction has not induced buyers to enter the market for larger propositions and no transaction recorded during the week can really be considered a criterion of market conditions. The sales reported range from a carload to lots of 100 tons, and the price received was \$13, Birmingham, but carload lots of a favorite brand for immediate delivery are reported sold at \$1 per ton premium on this basis. An increase in the number of inquiries received is reported, and the fact that the aggregate of shipments is materially increased by old contracts having been reinstated lends a cheerful tone to the situation, but the disposition manifested by purchasers as to negotiating for anticipated requirements does not materialize in additional strength. The activity recently noted in the Cast Iron Pipe market and the prospects for additional orders have been slow to improve the demand from that quarter, and smaller interests are still disposed to engage limited quantities only. However, producers report that order book requirements are practically equivalent to the accumulation on furnace yards and the present output, and maintain that the output will not be increased unless warranted by the volume of business presented. Such a condition has resulted in one stack having been put in blast during the week. Some improvement is noted in the demand for Basic Iron, and when old contracts are reinstated to some extent, which indications favor, the output will no doubt necessarily be increased. The total Iron production in the State is represented at present by 14 merchant stacks and four stacks making Basic Iron. None of the Charcoal furnaces is in operation.

**Cast Iron Pipe.**—In addition to the letting of 15,000 tons for Eastern points, which is pending the satisfactory disposition of municipal bonds, the aggregate of small contracts to be placed during the month is approximately 35,000 tons. This tonnage consists of lots ranging from 400 to 800 tons for maintenance work and small municipalities, and is principally for Southern points. Prices are still at variance and we revise nominal quotations on Water Pipe as follows, per net ton, f.o.b. cars here: 4 to 6 in., \$27; 8 to 12 in., \$25; over 12-in., average \$24, with \$1 per ton extra for Gas Pipe.

**Old Material.**—Improvements in market conditions are slow to develop. The consumption increases from time to time and the volume of material now being moved is encouraging, but the demand is not steady and each sale is largely a market within itself. The established schedule of quotations is being adhered to, but transactions recorded do not warrant a statement that prices are being maintained, and we quote nominally as follows, per gross ton, f.o.b. cars here:

Old Iron Rails.....	\$18.00 to \$18.50
Old Iron Axles.....	16.50 to 17.00
Old Steel Axles.....	15.50 to 16.00
Old Car Wheels.....	18.50 to 19.00
No. 1 Railroad Wrought.....	13.50 to 14.00
No. 2 Railroad Wrought.....	10.50 to 11.00
No. 1 Country Wrought.....	12.50 to 13.00
No. 2 Country Wrought.....	9.50 to 10.00
Wrought Pipe and Flues.....	10.50 to 11.00
Railroad Malleable.....	12.50 to 13.00
No. 1 Steel.....	12.00 to 12.50
No. 1 Machinery Cast.....	10.50 to 11.00
Stove Plate and Light Cast.....	9.50 to 10.00
Cast Borings.....	6.00 to 6.50



## New York.

NEW YORK, March 11, 1908.

**Pig Iron.**—The market continues very quiet. What small lots of Foundry Iron are being purchased are being taken at concessions by outside interests. It is only when the brand is demanded that the leading furnaces book the business at the schedule prices. We quote, at tidewater, as follows: No. 1 Northern Foundry, \$18.75 to \$19; No. 2 Foundry, \$17.75 to \$18.25; No. 2 Plain, \$17.25 to \$17.50; Gray Forge, \$16.25 to \$16.50. Southern Irons are \$17.50 to \$18 for No. 1 Foundry, and \$16.50 to \$17 for No. 2.

**Steel Rails.**—Little further Rail business has been entered in the past week, though some of the Eastern roads are expected to give some indication of their needs for 1908 in the near future. The Southern mill has been making its best records lately, but will soon be shut down for the installation of the new mill. The wide distribution of the Great Northern order is a matter of some comment. The provision in all the contracts that delivery shall be made in the first month after the opening of navigation suggests some urgency about getting the Rails, but it is well known that the facilities of the road to receive and forward Rails at its lake terminal are entirely inadequate to handling such a tonnage within a month. The final 10,000 tons of the total of 60,000 tons was placed with the Cambria Steel Company. Of the 10,000 tons taken by the Reading a short time ago 6000 tons went to the Pennsylvania Steel Company and 4000 tons to the Bethlehem Steel Company.

**Structural Material.**—More business has been coming to the mills recently, and the feeling is better, both among manufacturers and fabricators. The latter have not booked any great business lately, but they find indications that even the moderate reduction in cost of construction is stimulating some inquiry which may come to the point of real business as the season opens. In the East the principal contract taken in the past week was for over 2500 tons of Steel to go into the second section of the New Haven Railroad viaduct at Providence. L. F. Shoemaker & Co., who had the first section of this work, were the successful bidders. The Boston & Maine let 400 to 500 tons of viaduct work at Greenville, N. H., to the Boston Bridge Works. The St. Paul's contract for 1000 tons of bridge work is likely to be let this week. The Lehigh Valley is in the market for several hundred tons, and pier work at Baltimore, Md., will require about 1000 tons. The three ferry boats for New York City are still held up for financial reasons. About 600 tons of Plates and Shapes for each will be required, chiefly the former. Shipments are now being made from the Waverly, N. J., warehouse stocks of the Carnegie Steel Company. We quote prices, unchanged, as follows, on mill shipments, tidewater delivery: Beams, Channels, Angles and Zees, 1.86c.; Tees, 1.91c. On Beams, 18 to 24 in., and Angles over 6 in., the extra is 0.10c. Material cut to length is sold from stock at 2¼c. to 2½c.

**Bars.**—The week has been quiet, transactions having been confined to small quantities. Prices are continued at 1.50c., Pittsburgh, or 1.66c., tidewater, on Bar Iron, and 1.60c., Pittsburgh, or 1.76c., tidewater, on Steel Bars. An error was made last week in "Current Metal Prices," on page 832. Burden's Best Iron from store should have been quoted at 3.15c. base, instead of 3.30c., and Burden's H. B. & S. Iron at 2.95c. base, instead of 3.10c.

**Plates.**—Inquiries are few and the orders received by local sales agents have called for quite small quantities. Prices are unchanged as follows on standard sizes of Plates at tidewater: Sheared Plates, 1.86c. to 1.96c.; Flange Plates, 1.96c. to 2.06c.; Marine Plates, 2.26c. to 2.36c.; Fire Box Plates, 2.75c. to 3.50c., according to specifications.

**Cast Iron Pipe.**—Manufacturers are hoping that some of the large business awaiting the consummation of financial arrangements will soon come on the market. At present nothing definite is known as to the time when Syracuse will be prepared to purchase its heavy requirements nor when the finances of this city will enable important work to proceed which is now held up. The business at present being placed consists almost entirely of small lots, but competition among manufacturers is apparently as sharp for these small quantities as if they ran up to hundreds or thousands of tons. Carload lots of 6-in. could be had within the past few days at \$23.50 to \$24 per net ton, at tidewater. It is not believed that these low prices will prevail long if the price of Pig Iron is maintained at or about its present level, as very few foundries are able to show any profit on their operations at such prices.

**Old Material.**—Local conditions are unsatisfactory. The demand is very light, even foundries buying but small quantities and placing no orders whatever for future delivery. Some little Steel Scrap has been taken by dealers, and in a few instances rolling mill stock has been sparingly bought. The entire market, however, shows a decided lack of interest by consumers, and prices would probably be lower but for the influence of neighboring centers of trade. Shippers of material on contracts are meeting with much difficulty in making deliveries, as buyers are exceedingly critical, mak-

ing rejections for causes which would ordinarily not be taken into consideration. Quotations are nominal, being continued as follows per gross ton, New York City:

Old Girder and T Rails for melting.....	\$9.50 to \$10.50
Heavy Melting Steel Scrap.....	9.50 to 10.50
Old Steel Rails, rerolling lengths.....	11.00 to 12.00
Relaying Rails.....	18.50 to 19.50
Old Iron Rails.....	14.00 to 15.00
Standard Hammered Iron Car Axles.....	16.50 to 17.50
Old Steel Car Axles.....	14.00 to 14.50
No. 1 Railroad Wrought.....	12.00 to 13.00
Iron Track Scrap.....	10.00 to 11.00
No. 1 Yard Wrought, long.....	11.00 to 12.00
No. 1 Yard Wrought, short.....	10.00 to 11.00
Light Iron.....	5.00 to 6.00
Cast Borings.....	4.50 to 5.50
Wrought Turnings.....	6.00 to 7.00
Wrought Pipe.....	9.00 to 10.00
Old Car Wheels.....	17.50 to 18.50
No. 1 Heavy Cast, broken up.....	13.50 to 14.50
Stove Plate.....	11.50 to 12.50
Grate Bars.....	9.50 to 10.50
Locomotive Grate Bars.....	10.00 to 11.00
Malleable Cast.....	11.50 to 12.50

## Metal Market.

NEW YORK, March 11, 1908.

**Pig Tin.**—The demand is light, and very little business has been transacted. Buyers were evidently scared by the sharp advance last week, and are waiting more settled conditions. At the same time prices in London have not receded to the level maintained previous to the Dutch Government's announcement. The scarcity of spot Tin was again in evidence. Price changes during the week were as follows, all being for spot delivery:

	Cents.
March 4.....	30.00
March 5.....	29.50
March 6.....	29.62½
March 9.....	29.75
March 10.....	29.50
March 11.....	29.25

Tin to arrive during the week was offered at about ¼c. below the spot price. Most of the metal brought by the Mesaba and Minneapolis was shipped to the interior, but the Minneapolis reaching here March 16 will send some Tin to store. The total arrivals this month will reach about 3300 tons. Arrivals so far are 1967 tons, and there are afloat 2357 tons. The London market is firm, but slightly below last week's price at £134 for spot and £131 for futures.

**Copper.**—The rumored sale of a round lot of Electrolytic at 12.37½c. is not confirmed. This was supposed to be by one of the large producers to a wire manufacturer. Some sales of carload lots of Electrolytic have been made at about 12.50c. to 12.62½c., and second-hands have Lake to sell at 12.75c. Producers of Lake, however, are not in the market—at least not for the small demand now ruling. Inquiries are more numerous, but the actual business transacted is small. Announcement was made this week that the Greene properties, with a production of over 3,000,000 lb. per month, would resume shortly. The lighter branches of finished material are moving more freely, but the heavier trades, where most of the Copper is used, show little or no improvement. Some stiffening in prices was noted early to-day, and 12.75c. was asked for Electrolytic. A bid at 12.12½c. for Casting was promptly refused, and an offer to sell was made at 12.50c. European speculative business has fallen off during the week, although some buying has been going on, but not as much as would be expected in view of the rising market for warrants. While European consumers will doubtless buy for speculative purposes whenever the market declines to a figure considered favorable, there is little hope that the large takings which were in evidence up to a month ago will be continued unless prices should again decline. The London market is about £1 higher than last week, at £57 15s. for spot, and £58 2s. 6d. for futures. Best Selected is held at £62. Exports are light, amounting to 6010 tons so far this month.

**Pig Lead.**—An inquiry in the market for a round lot at 3.70c. was not accepted. The prevailing price is firm at 3.75c., New York, and 3.60c., St. Louis. Improvement is looked for by the end of the month.

**Spelter.**—The curtailment of the output, said to be 50 per cent., has not had much effect on stimulating prices, although prevailing quotations are steady at 4.60c., St. Louis, and 4.75c., New York. The light business both in Galvanizing mills and Brass works is not taking more than the present output. Little accumulation of metal, however, is in evidence.

**Antimony.**—Business is at a low ebb. So little demand is in evidence that prices continue nominal and unchanged at 9.50c. for Cookson's, 9c. for Hallett's and 8.50c. for outside brands.

**Nickel.**—Prices are without change at 45c. for ton lots and 55c. to 60c. for smaller quantities.

**Tin Plate.**—Considerable difference of opinion exists in the Tin Plate trade. In New York trade is dull, and the outlook is not very clear. A feeling prevails that specifications on contracts are not being supplied as freely as the mills desire. Prices are steady at \$3.89, New York, and

\$3.70, Pittsburgh, for 100-lb. IC Coke Plates. In Swansea, Welsh Plates are 1½d. higher at 12s. 1½d.

**Ferroalloys.**—The price of \$85 which has prevailed for some time for 50 per cent. Ferrosilicon is being shaded, and on a firm offer probably lower prices would be accepted, but sellers have not seen fit to revise their quotations as yet, in view of the light demand. Ferromanganese is quoted at about \$45, seaboard.

**Old Metals.**—A broadening tendency is observed, although lower prices are quoted on Brass and Composition. More inquiry is in evidence, and a better sentiment prevails. Dealers' selling prices are as follows:

	Cents.
Copper, Heavy and Crucible.....	12.00 to 12.25
Copper, Heavy and Wire.....	11.75 to 12.00
Copper, Light and Bottoms.....	11.00 to 11.25
Brass, Heavy.....	9.00 to 9.50
Brass, Light.....	7.00 to 7.50
Heavy Machine Composition.....	11.25 to 11.75
Clean Brass Turnings.....	8.00 to 8.25
Composition Turnings.....	9.00 to 10.00
Lead, Heavy.....	3.50
Lead, Tea.....	3.25
Zinc Scrap.....	3.50

### Iron and Industrial Stocks.

NEW YORK, March 11, 1908.

The period covered since the last issue of *The Iron Age* has been one of continuous improvement in the stock market. Prices have advanced from day to day, and for a portion of the time an almost buoyant condition was indicated. Iron and steel stocks may be said to have led the movement, as the strength they displayed caused renewed attention to be paid to railroad stocks and striking advances were then made in all lines. The cause of the upward movement appears to have been the improvement shown in the volume of business transacted by the United States Steel Corporation. The range of prices on active stocks from Thursday of last week to Tuesday of this week was as follows: United States Steel common 29½ to 32¼, preferred 92¼ to 96¾; Car & Foundry common 28¾ to 31, preferred 87½ to 88¾; Locomotive common 33 to 37¼, preferred 90½ to 91; Steel Foundries common 5 to 6, preferred 30 to 31; Cambria Steel 27½ to 29½; Colorado Fuel 16¾ to 18¾; Crucible Steel common 4¾ to 5, preferred 35¼ to 36½; Pressed Steel common 20 to 21½, preferred 73 to 80; Railway Spring common 25½ to 29¾; Republic common 15½ to 17½, preferred 66 to 69; Sloss-Sheffield common 42½ to 46½; Cast Iron Pipe common 19¼ to 19½, preferred 64 to 66¼; Can common 4½ to 5, preferred 45¾ to 48¾. Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 33, preferred 96¼; Car & Foundry common 29¼, preferred 87½; Locomotive common 37, preferred 90¾; Colorado Fuel 18¾; Pressed Steel common 21½, preferred 79; Railway Spring common 29½; Republic common 17¾, preferred 69¼; Sloss-Sheffield common 47; Cast Iron Pipe common 20, preferred 66¼; Can common 5; preferred 48.

**Dividends.**—The Canadian General Electric Company has declared a quarterly dividend of 1¼ per cent. on the common stock, and a semiannual dividend of 1½ per cent. on the preferred stock, both payable April 1.

The Otis Elevator Company has declared a quarterly dividend of 1½ per cent. on the preferred stock, and a semiannual dividend of 1½ per cent. on the common stock, both payable April 15.

The Railway Steel Spring Company has declared the regular semiannual dividend of 2 per cent. on the common stock, payable April 22.

The American Can Company has declared the quarterly dividend of 1¼ per cent. on the preferred stock, payable April 1.

The American Car & Foundry Company has declared a quarterly dividend of 1¼ per cent. on the preferred stock and 1 per cent. on the common stock, both payable April 1.

The Barney & Smith Car Company has declared a quarterly dividend of 2 per cent. on the preferred stock, payable March 15.

The secretary, Andrew M. Fairlie, Box 197, McCays, Tenn., announces that 10 new members have been added to the list of the American Brass Founders' Association. This association will hold its first annual convention at Toronto, Canada, in the second week of June, simultaneously with the convention of the American Foundrymen's Association. The secretary desires that all who intend to contribute papers notify him at once and announce their subjects.

The American Can Company, New York, intends to erect a plant in Canada, and is now negotiating for a site in the vicinity of Montreal. As soon as a location is selected it is probable that plans will be prepared and work of construction started.

### Customs Decisions.

#### Automatic Pistols Classified as Side Arms.

A customs controversy which has waged for a long time has been brought to a close by the Board of United States General Appraisers deciding that so-called automatic pistols are to be regarded for the purposes of duty as "side arms." In a previous case the board, while not approving of the classification of 45 per cent. as manufactures of metal imposed by the Government, was unable to sustain the contention, as the wrong claim had been made by the importer. In the latest case, which stands in the name of M. J. Corbett & Co., New York, the board upholds the claim of the protestants for duty at 35 per cent. as side arms.

#### Steel Plates for Engraving.

Judge Hough, in the United States Circuit Court, has handed down a decision in which it is held that steel plates intended to be engraved and used in the printing of steel engravings, and so-called monogram dies used for engraving monograms, are properly dutiable as "plates" at specific rates, together with additional duty as polished steel plates, under the provisions in the tariff for articles undergoing a brightening process. The test case stood in the name of W. B. Sellers, New York. It was alleged by the Government that the duty should be at the rate of 45 per cent. under the provision in the law for "manufactures of metal," but this contention the court holds to be incorrect.

#### German Chamber of Commerce Certificates Not Evidence.

The Board of Appraisers, in a decision recently promulgated, has made it clear that certificates of chambers of commerce of Germany cannot be accepted as competent evidence in dealing with questions of valuation, unless such certificates are sworn to and verified. The decision is considered in importing circles as something of a surprise in view of the provision in the German-American tariff agreement relating to the certificates as "competent evidence." The case before the board was that of the American Express Company, which imported merchandise from Germany. Attached to the invoice was a certificate from the Hamburg Chamber of Commerce to the effect that the prices stated in the invoice were correct. In overruling the contention of the importers and affirming the action of the Appraiser of the Port in making advances over entered value, General Appraiser Hay, who writes the decision, says in part:

The certificate in question, however, cannot be treated as anything more than the unverified statement of the gentleman who is the president of the Chamber of Commerce of the city of Hamburg, and, from the very nature of the statement itself, we think it a fair presumption that he had no personal knowledge of the facts set out in that statement. . . . Before this board can make a finding of facts, those facts must be established by competent testimony, fairly deducible from such testimony, or the result of a presumption of law.

The semiannual meeting of the American Society of Mechanical Engineers, in Detroit, will be held June 23 to 26. This is later than usual for the so-called spring meeting, and is partly a consequence of an arrangement to convene simultaneously with the Society for the Promotion of Engineering Education, and partly to make it easier for professors and students to attend, as by that time their class work will be over for the summer. Both societies will hold their headquarters in the same hotel, and as far as practicable the sessions of the two organizations will be so arranged that those desiring to attend both may do so. Interesting and pleasurable occasions are planned, and among the papers presented will be a symposium on the conveying of materials.

The United Steel Company, Canton, Ohio, shipped during February to the Ford Motor Company, Detroit, Mich., about 400 tons of vanadium steel. This steel was made especially for the motor company and is to be used in the construction of its automobiles. This is probably the largest shipment of vanadium steel for automobile work ever made in this country.



## The Machinery Trade.

NEW YORK, March 11, 1908.

The depression in the machinery trade was further emphasized the past week by the few inquiries and orders received, and the disposition on the part of buyers to purchase second-hand machinery; in fact, there are many dealers in this territory whose business is made up to a great extent of this latter class of trade. It is stated that there is a large quantity of second-hand machinery in stock which is nearly new, and because of the dullness in business buyers who are compelled to make purchases select these tools. Aside from the few tools urgently needed by works, but little inquiry has developed and no sizable sales are reported. In the power line the spurt of a few weeks ago has subsided, and since our last report inquiries have again fallen off. In this branch of equipment, however, there has been a fair export demand, particularly from Europe. Shipyards in Germany have placed orders for a considerable amount of pneumatic tools and for several air compressors.

It has been stated that the New York Central Railroad has decided to spend a large amount of money in improvements to its shops at West Albany, N. Y., and a traveling crane list which has been placed before the trade within the last week indicates that the buying movement has about commenced. The list of cranes on which the company is asking bids includes one 15-ton crane, one 30-ton crane and one 40-ton crane, all for indoor service in the company's large boiler shop, and one 20-ton crane to be used outdoors over the yard abutting on the boiler shop. These cranes are to be fitted for alternate current electric service, and the bids are to be sent to George W. Kittridge, who is chief engineer of the electric zone. It will be remembered that some time ago the company laid down plans for spending about \$300,000 for the construction and equipment of the buildings at West Albany, and the plans include an erecting shop, 90 x 440 ft., and other buildings. The motive power department some time ago asked for \$2,000,000 for the purchase of new equipment, and it is thought in the trade that part of this amount will be appropriated for machinery for the West Albany shops.

Several erroneous reports have been recently printed concerning the plans of the South & Western Railroad for replacing its shops at Carnegie, Pa., which were recently destroyed by fire, and for the location of new shops for taking care of the principal repairs. The shops at Carnegie were of minor importance, having been acquired with a small road purchased by the South and Western Railroad, and will not be rebuilt. The principal shops of the railroad, which will constitute a modern plant capable of handling the largest motive power, will be erected some time this year, the location for which has not been definitely decided. Several locations are under consideration, and it is believed that as soon as one is selected plans will be prepared for the new buildings. As it is the intention to make these shops modern in every respect, it is expected that a substantial amount of new equipment will be purchased for their equipment. As yet no decision has been made as to the character of the shops or the machinery to be installed.

Victor Beutner, consulting engineer, Westinghouse Building, Pittsburgh, has prepared plans and is asking estimates for the buildings and equipment for the Union Portland Cement Company, at Iola, Kan. The company was recently organized with \$3,500,000 capital stock and will build a plant to cost \$1,000,000 to produce 3000 bbl. of cement per day. Included in the equipment will be five large kilns, five 600-hp. gas engines, and \$80,000 worth of electrical equipment. The main office of the company is at Kansas City, Kan.

The Pressed Steel Car Company, Pittsburgh, Pa., has a number of inquiries in the market which indicate the company is doing some buying toward filling its shop needs. An order was placed during the week for a threading machine with a large Liberty street house, and inquiries now before the trade include a number of larger machines to be used in a similar capacity.

The Strong Steel Foundry Company has been placing some orders for its plant which is to be fitted up in the buildings formerly occupied by the Buffalo Cement Company, at Main and Amherst streets, Buffalo, N. Y. It will be remembered it was stated in these columns on February 20 that the company would need a complete line of foundry equipment, and it is said in the trade that preparations are being made to equip the plant as early as possible.

The Chicago Pneumatic Tool Company, New York, has recently received a number of orders for compressors from foreign countries, particularly Germany, where shipyards are adding to their equipment compressed air machinery. In addition to compressors orders for a substantial amount of pneumatic tools have also been received from the shipyards.

Last week mention was made of the partial destruction by fire of the power plant of the Pennsylvania Power Company, at Ellwood City, Pa. While the company has made

no plans for rebuilding there is no doubt that the plant will be rebuilt, but as it has not yet decided upon the location for the new plant and as it may possibly add materially to the capacity it had before the fire, definite plans will not be made until these matters are settled at a meeting of the Board of Directors, which will take place as soon as the insurance is adjusted.

George R. Webb has been elected president of the Duquesne Light & Power Company, Pittsburgh, Pa., succeeding Robert C. Hall, who has been elected vice-president. This company has plans for the construction of a large electric light plant, but which have been held in abeyance on account of the financial stringency.

The management of the Genesee Hotel, Buffalo, N. Y., is considering the advisability of installing an electric light plant in the house, and has inquiries now in the trade regarding the material, with a view to ascertaining the cost. The inquiries indicate the company will need two 75-hp. engines and two 50-kw. generators for a direct connection.

The Ott, Freundt & Arnold Yeast Company, Osgood avenue and John street, Stapleton, S. I., has inquiries in the trade for power equipment which includes a 75-hp. engine and a 15-kw. generator.

Plans for barge canal work involving the expenditure of about \$5,000,000, have been approved by the State Canal Board at Albany, N. Y. The plans cover contract No. 20 for dredging the Mohawk Valley at an estimated cost of \$3,480,000; contract No. 64, improving the canal in Orleans County at an estimated cost of \$1,307,000, and contract No. 45, for damming the Oneida River and constructing a lock at Baldwinsville at an estimated cost of \$250,000.

### Business Changes.

Edwin N. Ludeman & Co., 42 Broadway, New York, have arranged with the Detroit Stoker & Foundry Company, Detroit, Mich., to represent it throughout the Eastern States and for all the export trade for the sale of Detroit automatic stokers. Over 500 of these stokers have been installed for service in connection with the leading makes of both water tube and fire tube boilers.

The general offices of the Wheeler Condenser & Engineering Company have been removed to the factory at Carteret, N. J. A sales office will be maintained at 90 West street, New York, under the management of George D. Atwood.

**Catalogues Wanted.**—In the item printed last week the address of Edward G. Spitz was not correct. Mr. Spitz, who only expects to remain in this country a short time, is located at 241 West Fifty-second street, New York, and desires to receive catalogues at that address of all classes of machine tools and general foundry equipment, with a view to making connections to sell American machinery in Europe.

Eisenwerk Frauenfeld, A. G., vormals F. Martini & Co., Frauenfeld, Switzerland, desires catalogues from manufacturers of machinery for making machine screws, bolts and nuts, drop forgings, &c.

## Chicago Machinery Market.

CHICAGO, ILL., March 10, 1908.

While the total volume of business in machinery lines for the month of February was doubtless in excess of that of the preceding month, the margin of gain is scarcely wide enough to be regarded as of special significance. No change is observed in the character of orders being placed, which continue to include no extensive equipment requirements, but are mainly for single machines or small lots of machine tools. Dealers, however, report the continuance of an encouraging amount of inquiries, which they feel sure will result in business as soon as conditions become more settled. During the week some of these have originated in a few of the larger industrial plants, which leads to the inference that some of the factories now running light see hopeful signs of a better demand for their product in the near future. At the same time there is no general disposition on the part of the large manufacturing interests to extend their present shop facilities, the moderate purchases made by such plants being restricted largely to replacement orders. Among the sales of machine tools effected during the week by dealers, one is reported which includes two or three fair sized machines aggregating \$3000. Generally, however, the orders have been scattered, and nothing is coming from the railroads except as the result of persistent effort in demonstrating the economy of substituting a modern tool of particular merit for an out of date machine. One of the noticeable effects of the present business depression is the increased activity of machinery sales departments, which are thoroughly alive to every opportunity presented to secure orders. The buyer of machine tools who happens to come into the market now, instead of a weary wait of months for delivery, as was the case last

year, can now, in most cases, have his wants supplied from stock, or, at least, can rely on prompt shipment from factory.

Plans are being made for and bids are being sought on electric and motive power equipment for quite a number of municipal electric light and power plants, most of them, however, being for small or moderate sized units. Electricity is now playing an important part in mining operations, especially in coal mines, from which source a fair number of orders for electric generators, motors and auxiliary equipment are being received. In addition to electric haulage locomotives, motors are required for ventilating fans, electric hoists, centrifugal pumps, elevators, conveyors, &c. The boiler and engine trade is extremely quiet so far as large power units are concerned, and as a whole is only moderately active.

Demolition of the two blocks between the streets of Canal, Clinton, Lake and Washington, which formerly comprised a good portion of what was known as "Machinery Row," is rapidly progressing, and the remaining tenants of this district are moving to new locations. Among the recent removals, and those in early contemplation, are a number of concerns who have for many years occupied quarters on Canal and Clinton streets.

The Scott Valve Company, formerly at 63 South Canal street, has removed to 31 East Randolph street.

The Chicago Belting Company, now at 67 Canal street, is preparing to move into its new modern factory at 12-22 South Green street, which is nearing completion, and will be ready for occupancy about March 14.

About May 1 the H. A. Stocker Machinery Company will move into its new store at the northeast corner of Randolph and Jefferson streets. It will occupy the first floor and basement of this building, which is 100 x 100 ft.

The Brown & Sharpe Mfg. Company has moved from 16-18 South Clinton street to 101-107 Washington boulevard.

The Foote Brothers Gear & Machine Company, 24-30 South Clinton street, has under construction a new building at 44-50 Carpenter street, into which it expects to move about the first of June. This building, which is of concrete construction, has ground dimensions of 92 x 121 ft., one-half of which is built three stories high. The one-story extension in the rear has a saw tooth roof, giving ample light in the machine shop.

The city of Fort Worth, Texas, is asking for sealed proposals on equipment for an electric light plant, which will be opened on April 7. Included in the requirements for this installation are one 650-kw., three-phase, 60-cycle, 2300-volt alternating generator with exciter; 10 current transformers, switchboard panels for 50 arc each, and other auxiliary equipment; also one compound condensing Corliss engine, direct connected to the generator. Alternate proposals will be received for a 325-kw. generator with corresponding equipment. J. J. Nunnally is city auditor.

The Grupe Drier & Boiler Company, Davenport, Iowa, is contemplating the erection of a new shop to enable it to take care of its rapidly increasing business in grain drier presses and machinery. It is stated that the company is now employing more men than at any time in its history and is rapidly gaining an export trade. Among the recent installations and shipments made are seven driers for the Milwaukee Grain & Feed Company, Milwaukee, Wis.; four driers for the starch plant of Douglas & Co., Cedar Rapids, Iowa; two driers and two presses, Melrose Grain Drying Company, New York; complete plant, Standard Brewing Company, New Orleans, La., and Hiram Walker & Sons, Ltd., Walkerville, Ontario. Other shipments of like equipment were made to Douglas y Cia, Aguascalientes, Mexico; Edwardsburg Starch Company, Cardinal, Ontario; Keefer Starch Company, Columbus, Ohio; Huron Milling Company, Harbor Beach, Mich.

Arrangements are now under way for the installation of a water system at Rosalia, Wash., by the Rosalia Water Company, Inc., for which it is estimated that the expenditure of about \$20,000 will be required. The plant will be operated by electricity, and the machinery equipment upon which bids are being taken includes: One 6 x 8 in. double acting triplex power pump adopted to pumping against 125 lb. pressure; one air lift machine with a capacity of 150 to 200 gal. per minute from a depth of 90 ft.; standard electric motor of from 25 to 40 hp. The compressor or pump may be either direct connected or belt driven. For the distribution service about 12,000 ft. of 4, 6 and 8 in. pipe will be needed.

The Coquille River Electric Company, Coquille, Ore., expects to install a 250-hp. engine in its plant during the coming summer or fall. The type of engine has not as yet been selected, nor has it been determined whether the engine will be simple or compound. This enlargement of the plant is stated to be necessary on account of the rapidly increasing business. Frank Morse is manager.

Plans are under way for the erection of a plant for the manufacture of generators and electrical equipment, to be established by O. C. Irwin, Berlin, Wis. The plant will consist of a main building, 92 x 140 ft., and a foundry, 60 x 90 ft., the motive power for which will be electric, the current being furnished from the outside.

Otto Tonn, Haven, Kan., has been granted a franchise to erect a small plant at that place to light the streets by electricity. A plant having a capacity to furnish about 225 street lights, with a fair margin for commercial lighting, will be required.

The contract has been let by the city of Oxford, Miss., for a building to house an electric light plant, which it is proposed to install. Bonds in the sum of \$15,000 will be sold March 21 to secure funds for the construction of the building and purchase of equipment required for this improvement. It is expected the plant will be completed and ready for operation by July 1.

The Wisconsin Engine Company, Corliss, Wis., has received the resignation of Frank Engelhardt, who was in charge of the Chicago sales office of the company. The Wisconsin Engine Company has closed the Chicago office and for the time being will conduct the business from that district under the direct charge of C. T. Myers, general sales manager at Corliss.

## Cleveland Machinery Market.

CLEVELAND, OHIO, March 10, 1908.

Local machine tool builders report a slight improvement in inquiries, but orders are slow in materializing, and the volume of orders is showing little if any improvement. Manufacturers of machinery continue to run their plants on about the same reduced capacity that they have been operated on for several weeks past. Some are running on about 75 per cent. of their normal capacity, and a few at less than 50 per cent. The average capacity that is being operated is probably a little over 50 per cent.

The situation as regards dealers shows practically no change. Business is fairly good by spells. For a few days there will be quite a number of orders, and then for the next few days there will be practically nothing doing. The past week was a quiet one. Sales were few and they were limited mostly to single tools. Dealers are placing no stock orders, so that the only orders they are sending to the manufacturers are for tools for which they have taken orders, but which they do not have in stock. No orders for tools that were cancelled last fall are being reinstated, but dealers are hearing from some of these buyers, who say that they will want the tools as soon as business gets a little better. Tools are needed for some industrial plants that were being erected or enlarged late last fall, the equipment for which has not yet been ordered, or if ordered the orders were cancelled. The orders for heavy machinery are still scarce, but inquiries are better. Some local projects on foot indicate an improvement in the demand for small power plant equipment.

The supply of second-hand tools is still rather scarce. Few used tools are being offered to the dealers, and those that are offered are held at higher prices than dealers are willing to pay.

The automobile industry shows considerable improvement as far as the local plants are concerned. About all have considerably increased their working forces during the past two or three weeks, and some are now running at full capacity. The better outlook for the season has resulted in the placing by the automobile builders of some orders for machine tools during the past week or so.

The local jobbing foundry situation shows no change or improvement. Buyers of castings are placing only orders for their immediate needs, and the strong competition for the limited amount of business has resulted in orders being placed at prices so low that it is claimed that they will bring no profit to the foundrymen.

The Board of Trade of Coshocton, Ohio, has entered into a contract with James B. Clow & Sons, Chicago, according to the terms of which the Chicago company will erect a large pipe and radiator plant in Coshocton provided a bonus of \$100,000 is raised and a large tract of land is given for a site. The company at present has a plant in Newcomerstown, Ohio, but it desires to build a larger plant in a more desirable location. It is said that the plant that the Clow company intends to erect will cost in the neighborhood of \$1,000,000, and that it will include one of the largest foundries in the country.

At the annual meeting of the Brown Hoisting Machinery Company held a few days ago a highly satisfactory financial report was submitted for the past year. All the old officers were re-elected. The company has taken three or four good sized orders since the first of the year and has considerable other work on hand, some of which was temporarily held up late last year. Inquiries and sales have improved during the past few weeks, and the company reports that the prospects for a good year's business are now very fair. The plant of the company is now being operated at full capacity with its day turn, and it is hoped that conditions will soon improve sufficiently to warrant the employment of the night force.

The Village Council of Cuyahoga Falls has under consideration the question of purchasing new machinery equip-



ment for the municipal lighting plant. It is estimated that the equipment needed will cost about \$30,000.

The Notman Stove Company, recently organized with a capital stock of \$50,000, by Canton and Alliance business men, has decided to locate in Alliance and has secured the plant of the Ohio Pressed Sheet Steel Company in that city.

The Square Deal Mfg. Company has been incorporated at Delaware, Ohio, with a capital stock of \$25,000, and will erect a plant for the manufacture of hay presses. The incorporators are H. F. Owen, James J. Neville, Luther Trabue, Newton M. Miller and A. S. Conklin.

William H. Creahan and Mr. Hitchcock, who have been running an automobile repair shop in Warren, Ohio, are planning the erection of a plant for the manufacture of automobiles. In connection with this they will operate a machine shop. They are now looking for a site for a new plant.

The Ohio Metallic Packing Company, Cleveland, has been incorporated with a capital stock of \$50,000, by George C. Ford, G. M. Dahl, M. G. McAleeman, N. J. Webster and J. C. Rexroth.

The Fetzer Automobile Mfg. Company, Galion, Ohio, has been incorporated with a capital stock of \$100,000 by James F. Shumaker, M. E. Shumaker, Grover Shumaker, Allen H. Fetzer and James O. Sloan.

The Thomas-Peter Company, Canton, Ohio, has been incorporated with a capital stock of \$20,000 to manufacture toys, sheet metal specialties, &c. The company has been operating under the name of the National Mfg. Company. A new plant may be built.

The plant of the Lyman Mfg. Company, Chardon, Ohio, has been sold to E. M. Lyman, the principal stockholder. He intends to dispose of it and start a new plant in another place for the manufacture of pails. The new plant may be located in Warren or Niles.

## Philadelphia Machinery Market.

PHILADELPHIA, Pa., March 10, 1908.

A few more inquiries for machine tools have developed in the local machinery market, but they are confined to the smaller and medium class of tools, mostly individually or in lots of two or three tools. The situation on the whole, therefore, shows but little change. Business in every branch of the trade is largely of a day to day character. Tools purchased are for actual needs only, and there is almost nothing being done in the way of plant extension. Practically all the new propositions in this territory are being held in abeyance, one or two exceptions only being noted, and in these cases the placing of the machine tool orders is postponed until the last possible moment.

Manufacturers continue operating their plants in a more or less irregular fashion. The larger industrial concerns are catching up pretty well on the old orders on their books, and new business comes out but slowly, so that there is no opportunity for any gain in the output. Plants are running at varying capacities, ranging from 30 to 60 per cent. of their production at this time last year. The Baldwin Locomotive Works, while it has taken a few orders for locomotives from both foreign and domestic sources, has not made any gain in its production or working force. Other large industrial concerns are in much the same shape and few indeed are the plants which are being operated at 75 per cent. of their capacity. Special tool builders report a somewhat better demand, but there has not been enough business placed to change the situation in any marked degree. Dealers as a rule find business pretty well scattered, and although close attention is given to prospective buyers, the amount of business coming out is light.

Second-hand tool and machinery merchants report the demand as fair, there being a good number of inquiries for both metal and wood working machinery, although the individual needs are small and sales on the whole do not aggregate a very large total. Second-hand boilers, engines and power equipment are only in moderate demand, and no new business of any moment has come out during the week. Manufacturers as well as dealers in new boilers and engines also report trade extremely quiet.

The foundry trade shows practically no improvement. There have been some gains in spots, but in the aggregate the increase in tonnage has not been heavy. Foundrymen report plants in operation on a varying basis, in some instances 30 to 35 per cent., and in others at 50 to 60 per cent. of the capacity. Consumers will not take castings even at price concessions, except as absolutely needed, and forward business is therefore pretty scarce.

Heacock & Hokanson, engineers, have awarded the contract for the new warehouse building to be erected at 106-114 Bread street, for the Berger Bros. Company, to F. A. Havens & Co., builders and contractors. The cost will be \$26,827. This does not include the power installation, elevators or cement work, which will be separately awarded by the Berger

Company, which is now considering the various power systems before placing orders.

The Director of Public Works, Bureau of Water, 790 City Hall, Philadelphia, will receive bids until March 17, under what is known as contract No. 130, for auxiliary pumps for the Torresdale filter plant; contract No. 139, for pump ends, for the Queen Lane pumping station; contract No. 141, pipe connections, for the Lardner's Point station, and contract No. 142, track scales, for the Torresdale pumping station. Specifications, drawings, &c., can be obtained at the office of the chief of the bureau, room 700, City Hall.

Franklin & Clark, architects and engineers, have completed plans for a two-story brick factory building, 50 x 100 ft., with a wing addition, to be built for the MacAndrews & Forbes Company, chemical manufacturer, Camden, N. J. Estimates for the erection of the building are now being taken by the architects.

The County Commissioners of Bucks County will receive proposals at Doylestown, Pa., until March 16 for the construction of two reinforced concrete bridges, one in Hilltown township, near Dublin, the other near Pipersville. Plans and specifications showing the character of work and materials can be seen at the commissioners' office.

The contract for furnishing and installing two horizontal pumping engines, each having a capacity of 5,000,000 gal. per day, in the Shawmont pumping station, to replace old ones now in service, was awarded by the Director of the Bureau of Water to the Snow Steam Pump Company, which proposed to install the pumps in 280 days at a cost of \$78,000. At the same time a contract was awarded to the Bethlehem Steel Company to furnish and install two engines, each with a capacity of 10,000,000 gal. daily, in the Belmont pumping station, which will be installed in 225 days at a cost of \$88,520.

The machinery, general equipment and stock of materials on hand of the North Penn Iron Company, Third and Venango streets, which was declared a bankrupt some months ago, will, it is understood, be sold on the premises on March 20.

## Cincinnati Machinery Market.

CINCINNATI, OHIO, March 10, 1908.

If conditions which marked the flight of the first week of the last month of the first quarter are in any way significant, the second quarter should see a marked improvement in trade. There has been a decidedly better feeling manifest among makers of power plant equipment, and a little better tone pervades the atmosphere of tool manufacturing, although this is only discernible in spots. There has been very little change in the shop situation at most plants. With few exceptions all are running on part time, and with much reduced forces.

Some singularly sharp contrasts in conditions are noticed by the careful observer who has followed the course of a half dozen or more tool manufacturers during the months which marked and since the sudden depression of the past year. A few local tool builders, as soon as the storm set in and the flood of cancellations began to accumulate, hit upon the plan of endeavoring to counteract its ill effects, and notably two of these employed additional stenographers and clerks, increased their advertising appropriation, got up some strong and persuasive trade and follow-up letters and have gone after the business with an energy and aggressiveness that is now beginning to show pleasing results.

One concern making shapers is running on full time and with a complete force, and reports some excellent sales during the week. There are a few isolated cases of plants like this one running normal time and forces, and the encouraging condition can be traced directly to a determined stemming of the tide, a disposition to deny the depressing sentiments of the calamity howler, a setting determinedly to work for a share of what is going in the way of orders.

At the plant of the Allis-Chalmers Company in Norwood there have come in some good orders for large power equipment. Among these are a 1500-kw. generator for shipment to Nevada, another of 1000-kw. to go Southwest, one 500-kw. turbo generator for the East, a 1500-kw. generator for the Washburn-Crosby plant, three motor generators of 500 kw. each to be installed in the plant of the Youngstown Sheet & Tube Company, two 1500-kw. turbo generators for a large plant in the Northwest and a lot of smaller equipment. The Norwood plant is not as yet running full, but a gradually increasing force will be taken on as the orders above noted reach the constructing and erecting shops. In the foundry the present output is about one-third of that of last summer, when unusual conditions prevailed.

The widely published reports indicating radical changes in the Norwood plant of the Allis-Chalmers Company have only a fair semblance of truth, according to information from authentic sources here. There is contemplated a centralization or co-operation of interests in the engineering, drafting and correspondence departments, and about April

24 such parts of that work as has been done in Norwood will be transferred to the general offices in West Allis, Wis. About 30 employees will be affected. The report that all the large work would thereafter be done in Milwaukee or at West Allis is untrue.

The foundry of the Peck-Williamson Company, manufacturer of furnaces, is closed down at Wellston, Ohio. President A. W. Williamson of the company is on the scene, and will investigate and adjust some small differences that resulted in the walk-out of about 100 molders. As this is the annual inventory time, advantage will be taken of the temporary close down for that annual function. A local official expects a resumption of work in about a week, and reports business and prospects bright.

The John Grossius Furnace Company will build a \$15,000 factory in Broadway near Court street. The present plant of the company is in Eighth street just east of Broadway, and is directly in the path of the proposed route for the Gilbert avenue viaduct. The buildings, with others, will be razed to permit of this improvement. The new structure will be of three stories, with basement, 40 x 80 ft. The architect is C. M. Foster, who is taking bids.

City authorities have decided to order two additional pumping engines for installation in the Western Hills pumping station of the Cincinnati Water Works. The engines are needed to supply the suburb of Westwood, which is 75 ft. higher than any other district of the city.

The Stewart Iron Works Company is a new corporation for Cincinnati with a capital of \$10,000, launched by Harry L. Gordon, A. B. Horton, Victor Heintz, R. C. Stewart, and W. A. Stewart.

The Thew Automatic Shovel Company is a new incorporation at Lorain, Ohio. The capital stock is \$50,000. The incorporators are R. Thew, W. A. Donaldson, E. M. Pierce, S. Hitchcock, and F. A. Smythe.

Work of repairing the furnaces at the plant of the Columbus Iron & Steel Company, Columbus, Ohio, is progressing favorably. Both stacks will be relined, and a number of other repairs made. The furnaces will not go into blast earlier than May or June, according to present arrangements.

A report from South Bend, Ind., says that the Northern Indiana Railroad may remove its shops from that place to Goshen because of their present undesirable location. It is said that ultimately the owners of this system will manufacture their own cars and equipment.

The Bellevue Pipe & Foundry Company, Bellevue, Ohio, which has been shut down for some time, is again in operation.

The Seneca Chain Company, Mansfield, Ohio, is running with a force of 230 men, and when some necessary machinery is installed the force is expected to be increased to 300. Reports from this company indicate that the outlook is very encouraging.

The Eclipse Stove Company, Mansfield, Ohio, is running with full force half time, but expects shortly to resume full time in all departments.

Resumption of normal time and forces is gradual at the plant of the Aultman-Taylor Company, Mansfield, Ohio, and the company expects, if present inquiries materialize in orders, to open all departments soon.

The Cincinnati Milling Machine Company, Cincinnati, Ohio, has recently purchased a 72 x 72 in. x 40 ft. planer from William Sellers & Co., Philadelphia, Pa.

## New England Machinery Market.

WORCESTER, MASS., March 10, 1908.

No further improvement has been noted in the machine tool trade. Second-hand machines are being sold in considerable numbers, which is always characteristic of similar periods. A good many used tools have come into the market, and their presence is undoubtedly influencing the demand for new machinery. The dealers are selling a few tools, mostly small and inexpensive machines, with an occasional larger order. One dealer has disposed of three high priced milling machines within a few days to different customers. Practically everything in machinery may now be had for immediate delivery, the builders of milling machines and grinders, the last to quote anything but immediate or almost immediate shipment, now having caught up with their back orders.

Among the machine tool builders, as a whole, the production is falling off a little as old orders are cleaned up, or stocks have been sufficiently completed in accord with the ideas of the manufacturers. But some foreign orders have helped out to an extent, and an occasional domestic order has been a cheerful variation from the practical absence of new business. Inquiries continue to be numerous with the dealers, and to some extent with the manufacturers, especially for the standard machines. It is a matter of frequent comment that there should be so many who express by inquiries their intention of buying, with so few who decide to

go ahead immediately and prepare for a resumption by the time when machinery will be needed. Among the builders of automatic and semiautomatic machines there is little life in the way of business.

Enormous crowds and lively interest at the Boston Automobile Show at the Mechanics' Building are giving encouragement to the automobile people, who now look for a season by no means so poor as they had expected. The exhibition does not include such large displays of machinery as some people had expected, nor so many hardware novelties. The Chandler & Farquhar Company, Boston, had a notable exhibit, including a number of machine tools in practical operation, including grinders of the Norton Grinding Company, Worcester; gear cutting machine of the Standard Mfg. Company, Bridgeport, Conn.; the combined milling machine and upright drill of the W. B. Knight Machinery Company, St. Louis; cutting off machines and automatic saw grinder, Cochrane-Bly Company, Rochester, N. Y., and a number of power driven specialties of the Coates Clipper Company, Worcester.

The Waterbury Casting Company, Waterbury, Conn., has practically completed its foundry, and expects to begin operations early in April. The company will manufacture high grade castings for combustion engine cylinders and other purposes.

The American Ball Company, Providence, R. I., has sold its entire department for the manufacture of metal balls to the E. J. Jones Company, Buffalo, N. Y., and 49 Federal street, Boston. The Providence company will continue its important department of bearings, and its is understood will increase it in the near future. The sale to the E. J. Jones Company includes machinery and other tools, stock in hand, material, patent rights, patterns, &c. The equipment will be removed to Buffalo, where the new owner is concentrating its business in the plant of the Excelsior Machine Company, which it acquired not long ago. It is stated that its new acquisitions and recent improvements will give the company 65 per cent. of the country's production of balls.

The Eureka Reverse Gear Company, Hartford, Conn., has been incorporated under Connecticut laws, with an authorized capital stock of \$50,000, to manufacture a new reverse gear for motor boats and shaftings. The incorporators are Louis A. Sherman, Frederick A. Saunders, and Frederick G. Johnson, all of Hartford. The new device will be manufactured at 172 Pearl street.

Hill, Clarke & Co., Inc., Boston, are fitting up a model machine shop in their store at Oliver and Purchase streets. A number of important tools carried by the house will be in practical operation for the benefit of customers who wish a demonstration.

The Corbin Bros. Company, New Britain, Conn., manufacturing a line of hardware, has increased its capital stock from \$50,000 to \$300,000.

The Carlyle Johnson Machine Company, Hartford, Conn., manufacturer of friction clutches, had the largest month's business in its history in February. The volume of orders booked was practically equal to that of any previous month, even without an order for 120 friction clutches from William Sellers & Co., Philadelphia, which will go into the factory of Wolff Bros., in that city.

It is stated in a dispatch from Augusta, Maine, that Portland capital is interested in the establishment of a new shipyard at Tenants Harbor, land having been secured for the purpose along the water front. No details of the personnel of the enterprise are available.

The business of B. F. Smith & Bro., 38 Oliver street, Boston, has been incorporated as B. F. Smith & Co., Inc., with a Massachusetts charter and capital stock of \$30,000. The company makes a specialty of artesian and driven wells and foundation borings. H. F. Hill is president; S. P. Gates, vice-president, and C. D. Kirkpatrick, treasurer. The officers and C. H. Waterman constitute the Board of Directors.

## Government Purchases.

WASHINGTON, D. C., March 10, 1908.

The Isthmian Canal Commission will receive bids until March 14, circular No. 430, for engine and generator and engine driven exciter.

Proposals will be received until April 6 at the office of the United States Engineer, Cincinnati, Ohio, for boilers, machinery, &c.

The Isthmian Canal Commission will receive bids until March 30, circular No. 429, for rock drills, tin shop machines, &c.

The following bids were opened March 2, circular No. 423, for supplies for the Isthmian Canal Commission:

Class 1. Two centrifugal pumps—Bllder 2, Alberger Pump Company, New York, \$4938; 8, Blackhall & Baldwin Company, New York, \$4748; 14, Buffalo Steam Pump Company, Buffalo, N. Y., \$4189; 15, Camden Iron Works, Camden, N. J., \$5500 and \$4560; 27, Dayton Hydraulic Machinery Company, Dayton, Ohio, \$5950, \$4900 and \$5050; 32, Dravo, Doyle & Co., Philadelphia, Pa., \$4860; 39, Fox Bros. & Co., New York, \$4922 and \$5922; 87, Platt Iron Works Company, Dayton, Ohio, \$3600;



92, H. A. Rogers Company, New York, \$5435; 115, H. R. Worthington, New York, \$1496, pumps only.

Class 2. Four boiler feed pumps—Bidder 19, Central Metal & Supply Company, Baltimore, Md., \$900; 25, M. T. Davidson Company, New York, \$800; 34, Fairbanks, Morse & Co., New York, \$620; 39, Fox Bros. & Co., New York, \$1319.92; 66, Manning, Maxwell & Moore, New York, \$784.60; 72, Motley, Green & Co., New York, \$780; 74, National Electrical Supply Company, Washington, D. C., \$692; 87, Platt Iron Works Company, Dayton, Ohio, \$756; 96, Schoellhorn-Albrecht Machine Company, St. Louis, Mo., \$368; 108, Warren Steam Pump Company, New York, \$652; 115, H. R. Worthington, New York, \$963.24.

Class 3. Six horizontal boiler pumps—Bidder 19, Central Metal & Supply Company, Baltimore, Md., \$310; 25, M. T. Davidson Company, New York, \$294; 34, Fairbanks, Morse & Co., New York, \$222; 39, Fox Bros. & Co., New York, \$303.86; 42, Gardner Governor Company, Quincy, Ill., \$216.40; 66, Manning, Maxwell & Moore, New York, \$270.90; 72, Motley, Green & Co., New York, \$271.60; 74, National Electrical Supply Company, Washington, D. C., \$221; 87, Platt Iron Works Company, Dayton, Ohio, \$262; 96, Schoellhorn-Albrecht Machine Company, St. Louis, Mo., \$272; 108, Warren Steam Pump Company, New York, \$238; 115, H. R. Worthington, New York, \$200 and \$212.

Class 4. One punching and shearing machine—Bidder 63, Long & Alstatter Company, Hamilton, Ohio, \$845; 67, Manning, Maxwell & Moore, New York, \$1020; 85, Henry Pels & Co., New York, \$1050; 88, Queen City Punch & Shear Company, Cincinnati, Ohio, \$992.50; 106, Vandyck-Churchill Company, New York, \$875; 112, Wickes Bros., Saginaw, Mich., \$1025; 113, Williams, White & Co., Moline, Ill., \$1030; 120, Joseph T. Ryerson & Son, Chicago, Ill., \$1110.

The following bids were opened March 3 for machinery for the navy yards:

Class 11. One power press—Bidder 14, E. W. Bliss Company, Brooklyn, N. Y., \$1350; 60, Frevert Machinery Company, New York, \$1294; 71, Henshaw, Bulkeley & Co., San Francisco, Cal., \$1088; 140, Standard Machinery Company, Providence, R. I., \$1525 and \$1825; 201, Manning, Maxwell & Moore, New York, \$1450.

Class 12. One power circle shear—Bidder 60, Frevert Machinery Company, New York, \$60; 71, Henshaw, Bulkeley & Co., San Francisco, Cal., \$86; 128, Joseph T. Ryerson & Son, Chicago, Ill., \$112; 140, Standard Machinery Company, Providence, R. I., \$280 and \$305.

Class 13. One dry floor grinder—Bidder 60, Frevert Machinery Company, New York, \$156; 71, Henshaw, Bulkeley & Co., San Francisco, Cal., \$178; 126, Ransom Mfg. Company, Oshkosh, Wis., \$145; 140, Standard Machinery Company, Providence, R. I., \$140 and \$167; 151, Fred. Ward & Son, San Francisco, Cal., \$196.62; 200, Manhattan Supply Company, New York, \$209; 201, Manning, Maxwell & Moore, New York, \$143; 230, Harron, Rickard & McCone, San Francisco, Cal., \$181 and \$163.29.

Class 21. Two duplex boiler feed pumps, two duplex under-writer fire pumps, one duplex pump and one receiver—Bidder 24, Buffalo Forge Company, Buffalo, N. Y., \$2155; 61, Gardner Governor Company, Quincy, Ill., \$1710; 95, W. G. Morris, Phoenix, Va., \$2383; 100, National Electrical Supply Company, Washington, D. C., \$1961; 116, Platt Iron Works Company, Dayton, Ohio, \$2255; 213, J. J. Shannon & Co., Philadelphia, Pa., \$1992.50; 228, C. H. Wheeler Mfg. Company, Philadelphia, Pa., \$1959.

Class 22. One motor driven concrete mixing machine—Bidder 36, William Wirt, Clark & Sons, Baltimore, Md., \$785; 87, Koehring Machine Company, Milwaukee, Wis., \$730; 97, Municipal Engineering & Contracting Company, Chicago, Ill., \$798; 134, Standard Scale & Supply Company, Pittsburgh, Pa., \$700; 160, Waterloo Cement Machinery Company, Waterloo, Iowa, \$651; 174, Chicago Concrete Machinery Company, New York, \$835.45; 185, R. W. Geldart, New York, \$778; 213, J. J. Shannon & Co., Philadelphia, Pa., \$1000 and \$795; 224, Ernst Wulfer Company, New York, \$835 and \$640; 225, Frank H. Woodruff, New York, \$950.

Class 31. One timber planer—Bidder 129, Charles H. Robidoux, St. Louis, Mo., \$3446; 163, American Wood Working Machinery Company, New York, \$2866.40; 183, J. A. Fay & Egan Company, New York, \$3389.10.

Class 32. One combination hand resaw and rip saw—Bidder 96, William B. Mershon, Saginaw, Mich., \$1314.94; 129, Charles S. Robidoux, St. Louis, Mo., \$1610; 183, J. A. Fay & Egan Company, New York, \$1606.

Class 41. One 15-ton electric traveling crane—Bidder 5, Alliance Machinery Company, Alliance, Ohio, \$5974; 22, Alfred Box & Co., Philadelphia, Pa., \$4399; 34, Case Mfg. Company, Columbus, Ohio, \$5400; 45, Cleveland Crane & Car Company, Wickliffe, Ohio, \$4999; 91, Modern Steel Structural Company, Waukesha, Wis., \$4720; 102, Northern Engineering Works, Detroit, Mich., \$4750; 113, Pawling & Harnischfeger, Milwaukee, Wis., \$6350; 153, Whiting Foundry Equipment Company, Harvey, Ill., \$5340; 190, Hoisting Machinery Company, New York, \$6490; 197, Morgan Engineering Company, Alliance, Ohio, \$4995; 198, Motley, Green & Co., New York, \$5913; 201, Manning, Maxwell & Moore, New York, \$4781; 202, Richard Morton, Baltimore, Md., \$6500; 203, Niles-Bement-Pond Company, New York, \$4985.

Class 42. Two electric traveling cranes—Bidder 5, Alliance Machinery Company, Alliance, Ohio, \$11,930; 22, Alfred Box & Co., Philadelphia, Pa., \$8150; 34, Case Mfg. Company, Columbus, Ohio, \$11,800; 45, Cleveland Crane & Car Company, Wickliffe, Ohio, \$11,490; 91, Modern Steel Structural Company, Waukesha, Wis., \$10,350; 102, Northern Engineering Works, Detroit, Mich., \$5650; 144, William Sellers & Co., Philadelphia, \$12,190; 197, Morgan Engineering Company, Alliance, Ohio, \$11,350; 198, Motley, Green & Co., New York, \$10,762; 201, Manning, Maxwell & Moore, New York, \$11,530; 203, Niles-Bement-Pond Company, New York, \$11,190.

Class 43. One extension gap lathe—Bidder 60, Frevert Machinery Company, New York, \$2424; 203, Niles-Bement-Pond Company, New York, \$1743; 207, Prentiss Tool & Supply Company, New York, \$1956; 216, Tucker Tool & Machine Company, New York, \$2435; 221, Vandyck-Churchill Company, New York, \$2380.

Class 44. One screw cutting lathe—Bidder 75, Hendey Machine Company, Torrington, Conn., \$1150; 114, Pratt & Whitney Company, Hartford, Conn., \$1287; 188, Garvin Machine Company, New York, \$946; 201, Manning, Maxwell & Moore, New York, \$1150 and \$970; 203, Niles-Bement-Pond Company, New York, \$1096; 207, Prentiss Tool & Supply Company, New York, \$1164; 221, Vandyck-Churchill Company, New York, \$1092.

Class 45. One shaping machine—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$880 and \$533; 75, Hendey Machine Company, Torrington, Conn., \$788; 112, Potter & Johnson Machine Company, Pawtucket, R. I., \$686; 188, Garvin Machine Company, New York, \$847 and \$839; 203, Niles-Bement-Pond Company, New York, \$823; 207, Prentiss Tool & Supply Company,

New York, \$941; 221, Vandyck-Churchill Company, New York, \$736.

Class 46. One power feed drill press—Bidder 60, Frevert Machinery Company, New York, \$719; 188, Garvin Machine Company, New York, \$636; 201, Manning, Maxwell & Moore, New York, \$617 and \$376; 203, Niles-Bement-Pond Company, New York, \$518; 207, Prentiss Tool & Supply Company, New York, \$793; 221, Vandyck-Churchill Company, New York, \$425.

Class 47. One electrically driven sensitive drill—Bidder 41, James Cogg, Jr., Electric Company, Louisville, Ky., \$143.50; 88, Landis Machine Company, Waynesborough, Pa., \$440; 188, Garvin Machine Company, New York, \$193; 203, Niles-Bement-Pond Company, New York, \$123; 221, Vandyck-Churchill Company, New York, \$204.

Class 48. One emery grinder—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$332; 41, James Cogg, Jr., Electric Company, Louisville, Ky., \$141; 43, Challenge Machine Company, Philadelphia, Pa., \$250; 60, Frevert Machinery Company, New York, \$322; 103, Northern Electrical Mfg. Company, Madison, Wis., \$205; 148, Thompson Grinder Company, Springfield, Ohio, \$907.90; 198, Motley, Green & Co., New York, \$325; 201, Manning, Maxwell & Moore, New York, \$335, \$275 and \$295; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$340; 216, Tucker Tool & Machine Company, New York, \$329.39.

Class 49. One milling machine—Bidder 58, W. H. Foster Company, New York, \$1055.

Class 50. One universal milling machine—Bidder 26, Brown & Sharpe Mfg. Company, Providence, R. I., \$373.18; 79, Hill, Clarke & Co., Boston, Mass., \$2360; 203, Niles-Bement-Pond Company, New York, \$2856; 207, Prentiss Tool & Supply Company, New York, \$2685.

Class 51. One mortising machine—Bidder 17, Bentell & Margendant Company, Hamilton, Ohio, \$720; 66, Greenlee Bros., Chicago, Ill., \$810 and \$765; 129, Charles S. Robidoux, St. Louis, Mo., \$1030; 163, American Wood Working Machinery Company, New York, \$725; 183, J. A. Fay & Egan Company, New York, \$1034.

Class 52. One automatic cut-off saw—Bidder 17, Bentell & Margendant Company, Hamilton, Ohio, \$1000; 66, Greenlee Bros., Chicago, Ill., \$732 and \$682; 129, Charles S. Robidoux, St. Louis, Mo., \$865; 147, Tindel-Morris Company, Eddystone, Pa., \$1260, \$1468 and \$1596; 183, J. A. Fay & Egan Company, New York, \$885.50.

Class 53. One drilling machine—Bidder 170, Baker Bros., Toledo, Ohio, \$1430; 201, Manning, Maxwell & Moore, New York, \$875; 203, Niles-Bement-Pond Company, New York, \$1275 and \$1350.

Class 54. Five engine lathes—Bidder 55, Fairbanks Company, Philadelphia, Pa., \$5655 and \$5680; 75, Hendey Machine Company, Torrington, Conn., \$7107; 84, I. H. Johnson, Jr., Company, Philadelphia, Pa., \$5999; 188, Garvin Machine Company, New York, \$4932; 201, Manning, Maxwell & Moore, New York, \$6753 and \$7107; 203, Niles-Bement-Pond Company, New York, \$6598; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$6161; 221, Vandyck-Churchill Company, New York, \$5460 and \$6126.

Class 55. One patternmakers' lathe—Bidder 17, Bentell & Margendant Company, Hamilton, Ohio, \$116; 55, Fairbanks Company, Philadelphia, Pa., \$90 and \$137.50; 60, Frevert Machinery Company, New York, \$136; 129, Charles S. Robidoux, St. Louis, Mo., \$146; 163, American Wood Working Machinery Company, New York, \$100; 183, J. A. Fay & Egan Company, New York, \$135.30; 198, Motley, Green & Co., New York, \$128; 205, Oliver Machinery Company, New York, \$110, \$84 and \$74; 207, Prentiss Tool & Supply Company, New York, \$91.25 and \$123.25; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$119.

Class 56. One universal shaping machine—Bidder 58, W. H. Foster Company, New York, \$555; 144, William Sellers & Co., Philadelphia, Pa., \$1420.

Class 57. One bolt heading and forging machine—Bidder 3, Ajax Mfg. Company, Cleveland, Ohio, \$3297; 8, Baird Machinery Company, New York, \$3995; 60, Frevert Machinery Company, New York, \$3984; 198, Motley, Green & Co., New York, \$4100; 201, Manning, Maxwell & Moore, New York, \$4400.

Class 58. One planing machine—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$1430; 13, Bailey-Libby Company, Charleston, S. C., \$1335; 60, Frevert Machinery Company, New York, \$1298; 129, Charles S. Robidoux, St. Louis, Mo., \$1230 and \$1245; 144, William Sellers & Co., Philadelphia, Pa., \$1425; 188, Garvin Machine Company, New York, \$1369; 203, Niles-Bement-Pond Company, New York, \$1409; 207, Prentiss Tool & Supply Company, New York, \$1490; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$1510; 216, Tucker Tool & Machine Company, New York, \$1266; 221, Vandyck-Churchill Company, New York, \$1220 and \$1353.

Class 59. One boring and turning mill—Bidder 13, Bailey-Libby Company, Charleston, S. C., \$1875; 15, Becker-Brainard Milling Machine Company, Hyde Park, Mass., \$1813.97; 58, W. H. Foster Company, New York, \$2100; 129, Charles S. Robidoux, St. Louis, Mo., \$2340; 201, Manning, Maxwell & Moore, New York, \$2377; 203, Niles-Bement-Pond Company, New York, \$2025; 207, Prentiss Tool & Supply Company, New York, \$1735; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$2330; 221, Vandyck-Churchill Company, New York, \$2460.

Class 60. One boring and milling machine—Bidder 51, Fitchburg Machine Company, Fitchburg, Mass., \$4270; 203, Niles-Bement-Pond Company, New York, \$4150; 234, Ingle Machine Company, Rochester, N. Y., \$2825.

Class 61. One universal radial drill—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$1395; 13, Bailey-Libby Company, Charleston, S. C., \$1475; 60, Frevert Machinery Company, New York, \$1399; 129, Charles S. Robidoux, St. Louis, Mo., \$1350; 188, Garvin Machine Company, New York, \$1265 and \$1302; 201, Manning, Maxwell & Moore, New York, \$1265 and \$1390; 203, Niles-Bement-Pond Company, New York, \$1350; 207, Prentiss Tool & Supply Company, New York, \$1470; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$1559 and \$1683; 221, Vandyck-Churchill Company, New York, \$1354.

Class 62. One vertical drill press—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$275; 13, Bailey-Libby Company, Charleston, S. C., \$380; 60, Frevert Machinery Company, New York, \$294; 79, Hill, Clarke & Co., Boston, Mass., \$339; 129, Charles S. Robidoux, St. Louis, Mo., \$340; 150, Thomas & Lowe Machine Company, Providence, R. I., \$345; 188, Garvin Machine Company, New York, \$265; Manning, Maxwell & Moore, New York, \$300, \$497 and \$523; 203, Niles-Bement-Pond Company, New York, \$258; 207, Prentiss Tool & Supply Company, New York, \$297; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$376; 221, Vandyck-Churchill Company, New York, \$294.

Class 63. Two vertical drill presses—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$178 and \$202; 13, Bailey-Libby Company, Charleston, S. C., \$258; 28, Batchelor, Clark & Batchelor, New York, \$186; 60, Frevert Machinery Company, New York, \$166 and \$196; 79, Hill, Clarke & Co., Boston, Mass., \$200; 129, Charles S. Robidoux, St. Louis, Mo., \$220; 150, Thomas & Lowe Machine Company, Providence, R. I., \$300;

188, Garvin Machine Company, New York, \$187; 201, Manning, Maxwell & Moore, New York, \$228 and \$224; 203, Niles-Bement-Pond Company, New York, \$196; 207, Prentiss Tool & Supply Company, New York, \$250; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$296; 221, Vandyck-Churchill Company, New York, \$260.

Class 64. One sensitive drill—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$49; 28, Batchelor, Clark & Batchelor, New York, \$51.45; 60, Frevert Machinery Company, New York, \$55; 79, Hill, Clarke & Co., Boston, Mass., \$49; 129, Charles S. Robidoux, St. Louis, Mo., \$55; 188, Garvin Machine Company, New York, \$57; 203, Niles-Bement-Pond Company, New York, \$49; 207, Prentiss Tool & Supply Company, New York, \$56; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$296; 216, Tucker Tool & Machine Company, New York, \$47.75; 221, Vandyck-Churchill Company, New York, \$52.

Class 65. One universal milling machine—Bidder 13, Bailey-Libby Company, Charleston, S. C., \$595; 16, Becker-Brainard Milling Machine Company, Hyde Park, Mass., \$790; 26, Brown & Sharpe Mfg. Company, Providence, R. I., \$765.65; 42, Charlotte Supply Company, Charlotte, N. C., \$702.28; 75, Hendey Machine Company, Torrington, Conn., \$708; 79, Hill, Clarke & Co., Boston, Mass., \$600; 129, Charles S. Robidoux, St. Louis, Mo., \$755; 188, Garvin Machine Company, New York, \$700; 198, Motley, Green & Co., New York, \$822; 201, Manning, Maxwell & Moore, New York, \$708; 203, Niles-Bement-Pond Company, New York, \$710; 221, Vandyck-Churchill Company, New York, \$770.

Class 66. One plain milling machine—Bidder 16, Becker-Brainard Milling Machine Company, Hyde Park, Mass., \$790; 26, Brown & Sharpe Mfg. Company, Providence, R. I., \$522.40; 42, Charlotte Supply Company, Charlotte, S. C., \$558.91; 75, Hendey Machine Company, Torrington, Conn., \$701; 79, Hill, Clarke & Co., Boston, Mass., \$550; 188, Garvin Machine Company, New York, \$512; 198, Motley, Green & Co., New York, \$672; 201, Manning, Maxwell & Moore, New York, \$701; 203, Niles-Bement-Pond Company, New York, \$710; 221, Vandyck-Churchill Company, New York, \$640.

Class 67. One screw cutting engine lathe—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$1335; 13, Bailey-Libby Company, Charleston, S. C., \$1378; 60, Frevert Machinery Company, New York, \$1694; 75, Hendey Machine Company, Torrington, Conn., \$1287; 84, I. H. Johnson, Jr., Company, Philadelphia, Pa., \$1346; 188, Garvin Machine Company, New York, \$1265 and \$1220; 198, Motley, Green & Co., New York, \$1275; 201, Manning, Maxwell & Moore, New York, \$1348; 203, Niles-Bement-Pond Company, New York, \$1624 and \$1343; 221, Vandyck-Churchill Company, New York, \$1322.

Class 68. One screw cutting engine lathe—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$920; 60, Frevert Machinery Company, New York, \$968; 75, Hendey Machine Company, Torrington, Conn., \$978; 79, Hill, Clarke & Co., Boston, Mass., \$750; 84, I. H. Johnson, Jr., Company, Philadelphia, Pa., \$824; 150, Thomas & Lowe Machinery Company, Providence, R. I., \$940; 188, Garvin Machine Company, New York, \$992 and \$955; 198, Motley, Green & Co., New York, \$785; 201, Manning, Maxwell & Moore, New York, \$915 and \$978; 203, Niles-Bement-Pond Company, New York, \$898; 221, Vandyck-Churchill Company, New York, \$794.

Class 69. Two engine lathes—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$1190 and \$1212; 60, Frevert Machinery Company, New York, \$1224; 75, Hendey Machine Company, Torrington, Conn., \$1430; 79, Hill, Clarke & Co., Boston, Mass., \$590; 114, Pratt & Whitney Company, Hartford, Conn., \$1546; 150, Thomas & Lowe Machinery Company, Providence, R. I., \$1240; 188, Garvin Machine Company, New York, \$1160; 201, Manning, Maxwell & Moore, New York, \$1440 and \$1430; 203, Niles-Bement-Pond Company, New York, \$1266; 211, W. G. Stevenson, Philadelphia, Pa., \$1214.

Class 70. One engine lathe—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$382 and \$450; 60, Frevert Machinery Company, New York, \$363; 75, Hendey Machine Company, Torrington, Conn., \$548; 114, Pratt & Whitney Company, Hartford, Conn., \$550 and \$577; 150, Thomas & Lowe Machinery Company, Providence, R. I., \$458; 198, Motley, Green & Co., New York, \$460; 201, Manning, Maxwell & Moore, New York, \$548; 203, Niles-Bement-Pond Company, New York, \$473; 221, Vandyck-Churchill Company, New York, \$495.

Class 71. One toolroom lathe—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$425 and \$485; 60, Frevert Machinery Company, New York, \$498; 75, Hendey Machine Company, Torrington, Conn., \$539; 79, Hill, Clarke & Co., Boston, Mass., \$487; 114, Pratt & Whitney Company, Hartford, Conn., \$552; 198, Motley, Green & Co., New York, \$385.50 and \$418.50; 203, Niles-Bement-Pond Company, New York, \$464; 221, Vandyck-Churchill Company, New York, \$511.

Class 72. One post shaper—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$355; 13, Bailey-Libby Company, Charleston, S. C., \$417; 60, Frevert Machinery Company, New York, \$418 and \$448; 75, Hendey Machine Company, Torrington, Conn., \$490 and \$438; 112, Potter & Johnson Machine Company, Pawtucket, R. I., \$546; 188, Garvin Machine Company, New York, \$485; 198, Motley, Green & Co., New York, \$385.50 and \$418.50; 203, Niles-Bement-Pond Company, New York, \$433; 207, Prentiss Tool & Supply Company, New York, \$341 and \$443; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$493; 221, Vandyck-Churchill Company, New York, \$470.

Class 73. One slotter—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$1120; 13, Bailey-Libby Company, Charleston, S. C., \$1000; 104, Newton Machine Tool Works, Philadelphia, Pa., \$960; 198, Motley, Green & Co., New York, \$1159; 203, Niles-Bement-Pond Company, New York, \$966; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$1167; 216, Tucker Tool & Machine Company, New York, \$1126.

Class 74. One single bolt cutter—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$430; 25, H. B. Brown Company, East Hampton, Conn., \$470; 60, Frevert Machinery Company, New York, \$394 and \$426; 129, Charles S. Robidoux, St. Louis, Mo., \$420; 144, William Sellers & Co., Philadelphia, Pa., \$700; 155, Wiley & Russell Mfg. Company, Springfield, Mass., \$335.47; 201, Manning, Maxwell & Moore, New York, \$498; 207, Prentiss Tool & Supply Company, New York, \$399; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$420; 221, Vandyck-Churchill Company, New York, \$437.

Class 75. One bolt threading and cutting machine—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$488; 13, Bailey-Libby Company, Charleston, S. C., \$410; 44, Central Metal & Supply Company, Baltimore, Md., \$550; 58, W. H. Foster Company, New York, \$575; 60, Frevert Machinery Company, New York, \$409; 79, Hill, Clarke & Co., Boston, Mass., \$625; 136, Thomas Sumnerville & Co., Washington, D. C., \$726.33; 176, Drew Machinery Agency, Manchester, N. H., \$728.55; 198, Motley, Green & Co., New York, \$409.75; 201, Manning, Maxwell & Moore, New York, \$698; 203, Niles-Bement-Pond Company, New York, \$463; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$493; 221, Vandyck-Churchill Com-

pany, New York, \$392; 222, Vermilye & Power, New York, \$225.63.

Class 76. One grinding machine—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$133 and \$150; 13, Bailey-Libby Company, Charleston, S. C., \$145; 43, Challenge Machine Company, Philadelphia, Pa., \$110; 60, Frevert Machinery Company, New York, \$134; 198, Motley, Green & Co., New York, \$148.13; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$135; 216, Tucker Tool & Machine Company, New York, \$155; 221, Vandyck-Churchill Company, New York, \$97.

Class 77. One water tool grinder—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$190 and \$147; 13, Bailey-Libby Company, Charleston, S. C., \$185; 43, Challenge Machine Company, Philadelphia, Pa., \$130; 60, Frevert Machinery Company, New York, \$157; 79, Hill, Clarke & Co., Boston, Mass., \$89; 126, Ransom Mfg. Company, Oshkosh, Wis., \$85; 198, Motley, Green & Co., New York, \$144.77; 207, Prentiss Tool & Supply Company, New York, \$88; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$145; 216, Tucker Tool & Machine Company, New York, \$151; 221, Vandyck-Churchill Company, New York, \$89.

Class 78. One twist drill grinder—Bidder 8, Baird Machinery Company, Pittsburgh, Pa., \$78; 13, Bailey-Libby Company, Charleston, S. C., \$63.75; 28, Batchelor, Clark & Batchelor, New York, \$69.50; 215, W. E. Shipley Machinery Company, Philadelphia, Pa., \$69; 216, Tucker Tool & Machine Company, New York, \$62.98; 221, Vandyck-Churchill Company, New York, \$70.

Class 81. Two 200-hp. boilers—Bidder 23, Babcock & Wilcox Company, New York, \$6087 and \$5947; 80, Heine Safety Boiler Co., Philadelphia, Pa., \$5388; 125, Howard W. Read, Philadelphia, Pa., \$6840; 172, R. D. Cole Mfg. Company, Newman, Ga., \$6270; 180, Frick Company, Waynesboro, Pa., \$7200; 186, A. D. Granger Company, New York, \$6596; 214, Standard Engineering Company, Philadelphia, Pa., \$6625; 233, John D. Westbrook, New York, \$6987.50.

Class 91. One band saw mill equipment—Bidder 1, Allis-Chalmers Company, Milwaukee, Wis., \$9158; 18, Berlin Machine Works, Beloit, Wis., \$9397.20; 96, William B. Merabon, Saginaw, Mich., \$10,672.85; 183, J. A. Fay & Egan Company, New York, \$11,330.

Class 101. One crank shaft lathe—Bidder 147, Tindell-Morris Company, Eddystone, Pa., \$2400.

The following awards have been made for supplies for the navy yards, bids for which were opened February 25:

Ingersoll-Rand Company, New York, class 61, six chipping hammers, \$153.90.

Chicago Pneumatic Tool Company, New York, class 62, four pneumatic screen shakers, \$180.

Independent Pneumatic Tool Company, Chicago, Ill., class 63, four pneumatic drills, \$203.

### Labor Notes.

The Iron Molders' Union has called off its strikes at St. Louis against the Carondelet Foundry Company, Green's Car Wheel Mfg. Company, the Scullin-Gallagher Iron & Steel Company, St. Louis Car Wheel Company and Whitman Agricultural Company. Some of these strikes were started in 1906 and the foundries involved have been operated since as open shops. At Beloit, Wis., the local union has voted to call off the strike begun May 1, 1906, and at Rockford, Ill., 40 striking molders have been notified that the national body will discontinue strike benefits there.

Notice has been posted in a number of foundries in the Pittsburgh District, announcing a reduction in wages of core makers from \$3.50 to \$3.25 per day. The men have decided to accept the reduction and have appointed a committee to confer with the foundry operators.

A meeting of the New York Branch of the National Metal Trades Association was held this week, at which statements were presented showing that out of 12,000 men employed by the members of the branch under the full operation of plants in the fall of 1907, the number now at work is about 6000. No reduction in wages has been made. The association has no agreements with any of the unions represented in the shops of its members.

The Bristol Company, Waterbury, Conn., has taken up the publication of a monthly known as the *Recorder*, the first issue of which has just appeared. It is about 4 x 6½ in. in size, and the present issue contains 16 pages. The purpose in publishing this periodical is to keep in closer touch with the company's customers, to acquaint them with new lines, types and ranges of instruments which are continually being produced, and afford them the benefit of the experiences of others in the use of the instruments. In short, the object is to increase the knowledge of the useful applications of recording instruments. The *Recorder* will be published at the Chicago office of the Bristol Company, 753 Monadnock Building, and will be mailed free each month to those who signify a desire to receive it.

An effort is being made and has strong support in the House at Washington to increase the number of battleships provided for in this year's naval bill from two to four.



### The Cincinnati Metal Trades Association.

The Cincinnati Metal Trades Association held its annual meeting on the evening of March 5 at the Business Men's Club. The usual banquet preceded the business meeting. President S. P. Egan, with his fellow officers and the guest speaker of the evening, James A. Green of Matthew Addy & Co., sat at the head table and ranged down the sides of three projecting wings were about 100 members of the association, which comprises the Seventh District, and includes Hamilton County, Ohio, and Kenton and Campbell counties, Kentucky. After the banquet President Egan briefly recalled pleasures of past meetings of the same character, outlined something of what might be expected during the course of the evening and announced that the reports of various officers would be heard.

Secretary John M. Manley gave an exhaustive résumé of the work of the year. Among some of the points made by Mr. Manley in his address were that the organization has grown in three years from 46 to 70 members, representing under normal conditions an operating force of 10,000 employees. He dwelt particularly on the good results obtained from the summer outings of the association, which were participated in by many thousands of employees, and gave the working force food for thought and discussion sound in principle and of a nature calculated to help the employer, rather than retard him and disturb shop discipline. Referring to the bill recently presented by Senator Beveridge in the Senate, concerning injunctions in labor disputes, the secretary said:

The bill is radical and somewhat vague in its terms, although it recognizes one standard before the law of organized labor and a different and narrower standard by which to judge the collective activities of every other class in the community. Mr. Gardner of New Jersey has also introduced in the House of Representatives his famous bill providing for the 8-hr. day, and it is now pending before the Committee on Labor of the House. If enacted into a law it would involve revolution and destruction to American manufactures. If you had a contract to supply machinery to the Government, and the foundryman who supplies the castings should find that his cupola was not working well and that it was necessary for his force to work 1 min. over 8 hr., you would be subjected to a fine of \$5 apiece for each person who worked overtime, this amount to be held from your contract as liquidated damages. It is an effort to give the industries of this country applied socialism by force of law.

Mr. Manley referred feelingly to the recent death of a valued member, James Powell, and a special committee composed of C. H. M. Atkins of the Warner Elevator Company, Andrew Messmer of the Andrew Messmer Company, and George W. Krapp of the Ahrens Fire Engine Company presented, later, a touching and eloquent tribute to the memory of the deceased.

The Executive Committee, composed of H. Ritter of the Lunkenheimer Company, Isidor Rauh of the Cincinnati Electrical Tool Company, and George Langen of the Cincinnati Planer Company, reported the following:

The Executive Committee has carefully considered the proposed new constitution of the National Metal Trades Association, and while in some respects the changes meet our views, we do not believe the proposed constitution provides sufficient scope for the development of branch associations. We therefore recommend that our members vote against the proposed constitution. Your Executive Committee will urge upon the convention the reference of this matter to the same or a new committee for further consideration.

Chairman B. B. Quillen of the Entertainment Committee in his report recalled pleasures of the year in outings and at table. It concluded with a recommendation that a third annual outing of the association be held during the coming summer at a time and place to be selected by the Executive Committee.

Chairman J. C. Hobart of the Nominating Committee announced the committee's selections for officers for the ensuing year, and they were elected as follows: President, John W. Neil, secretary and treasurer of the John H. McGowan Company; vice-president, B. B. Quillen, secretary and treasurer of the Cincinnati Planer Company; secretary, F. E. Le Blond, manager of the Le Blond Machine Tool Company; treasurer, J. B. Doan, vice-president and general manager of the American Tool Works Com-

pany; Executive Committee, E. M. Chace, Henry Ritter and L. G. Robinson.

After the short business session was concluded Mr. Green was introduced, and the remainder of the evening was given up to his portrayal of the delights of a trip over the route of the Panama Canal, pleasantly diversified with side journeys around and through the West Indies. The pictures thrown on the screen were photographs made by Mr. Green and other members of the combined Commercial Club's party which a year ago chartered a ship and made an inspection of operations in the Canal Zone.

### The British Iron Market.

In the last week of February a better feeling developed in the pig iron markets of Great Britain. Higher prices were paid for Cleveland pig iron than had been reported since November. There was freer buying at the end of February by German and other Continental consumers, and the price of No. 3 Cleveland iron advanced to 50s. 9d. Shipments in February from the Cleveland District were greater than in the corresponding month of any other year. Up to February 26 the exports were 113,034 tons, as compared with 86,855 tons in January this year and 100,663 tons in February, 1907—all to the 26th of the month.

Stocks of pig iron in Connal's stores, which increased in January and the early part of February, were decreasing at the end of the month, the total decrease in February being 10,265 tons. The stock then on hand was 90,262 tons. The expectation of a settlement of the dispute in the shipbuilding and machinery trades encouraged optimism, and while new business at shipyards and engineering works is not large, it is the opinion that conditions will improve in the next two months.

**A European Spelter Agreement.**—A combination among European producers of spelter has been effective in keeping the London market within a narrow range of £2 10s. since the first of the year. Prices are now £1 10s. above the lowest. It is understood that the principal Rhenish-Westphalian, Silesian and Belgian producers are in the combination. Spelter is much more widely used in Europe than in this country, and in the three districts mentioned the product is approximately 350,000 tons per annum, compared with slightly over 200,000 tons in the United States. While some of the largest foreign producers have not formally entered into the agreement they have signified their intention of maintaining prices, and among these are supposed to be Vieille Montagne and G. von Giesche's Erben. It is the intention of the combination to appoint a selling agent to take care of the marketing of products and production has already been reduced a considerable degree.

For two years an annual dinner has been given by the heads of departments and the office force of Milliken Brothers, Inc., New York. The third dinner was held at Reisenweber's, New York, on the evening of March 7, and was attended by 106 men, including the following guests of the evening: J. Van Vechten Olecott and William L. Ward, receivers of Milliken Brothers, Inc.; Foster Milliken, Francis Dykes and Waddill Catchings, secretary to the receivers. August Heckscher, the third receiver, who is in Europe, sent a letter of greeting. Addresses were made by the guests, and a musical and vaudeville programme was given, followed by an entertainment by members of the office force. James M. Ryan was toastmaster, and Charles W. Eckhardt was chairman of the committee having charge of the affair. It was most successful in all respects, and was marked by a much larger attendance than either of the preceding functions. The addresses indicated a high degree of enthusiasm throughout the organization.

The autumn meeting of the Iron and Steel Institute will be held at Middlesbrough, England, this year. The last meeting in the Cleveland District was at Middlesbrough 25 years ago.

# HARDWARE

MUCH attention has naturally been given during the past two months to the annual reports of corporations and business houses, showing the financial results for the period to which they relate. Back of such condensed reports there are of course records, voluminous and complicated, relating to the various departments, and with a multitude of details, all of which are covered and summarized in the accounting system. An important part of this mass of statistics is that which has to do with the manufacturing costs. In these times there is perhaps more opportunity, under the relaxed pressure of orders, for the examination of accounting methods and for making such improvements as may be suggested. All manufacturers who produce more than one line of goods should see to it that their office and factory accounts are so arranged that when their annual statement of profits is rendered they may ascertain exactly how much is made or lost on each different line of goods they make. This information should be valuable, and it often reveals a surprising condition of things.

Some years ago, for example, an expert accountant devised and introduced for a prominent manufacturing firm a factory business and cost system, and after its installation supervised its practical working. The result of the first year's work was such as to cause the management to question the accuracy of the figures presented, owing to the fact that it showed conditions existing in some departments which were diametrically opposite to those which had always been supposed to prevail. The head of this firm had always believed that a department in which he took a peculiar interest, one indeed which used the greatest quantity of material in the course of the year, was the most profitable and, as he supposed, was carrying the load of other less remunerative departments. When at the end of the first year the detailed statement of profits was laid before him, and this particular department was shown to be doing business at a loss, it was so different from what was expected that he could not be convinced of its accuracy, and was indeed disposed in his disappointment to discharge the expert, whom he regarded as the cause of the trouble. The second year's report, however, only substantiated the results given in that of the first year, and while it was an exceedingly bitter pill to swallow its accuracy was clearly and thoroughly demonstrated.

In the knowledge thus gained was laid the foundation for a better order of things. The report showed the use of a greater quantity of certain expensive supplies than was realized, and experiments were conducted with the view to substitution wherever possible; labor saving methods in processes of manufacture were adopted, and automatic machinery invented and introduced, so that before long the department showed a gain. Still further improvements and substitutions were continually made until to-day this is one of the firm's most profitable departments of manufacture. In the case of another line, owing to the prevailing selling conditions, it was found impossible to remedy the losses sustained; it was therefore decided to discontinue it, and utilize the space and energy to expand a line which was productive of profit. Only system and accurate knowledge of costs and conditions permitted the changes to be effected, thus contributing in an important manner to the profit of the business.

## Condition of Trade.

The question as to the condition of trade in any particular line is obviously dependent on the general state of the market in other lines, for the improvement desired in any branch of trade can only come with the clearing of the commercial skies in general and be accomplished by an increased volume of business in other branches. When the business in Hardware and related lines is compared with that in other departments of trade there is little reason for complaint, as the interests with which our readers have to do are getting their share of orders and contributing their part to the resumption of normal activity. Taking a broad outlook over the various markets there is undoubtedly on the whole a substantial advance being made in the direction of healthful business of materially increased volume. This is the case, notwithstanding the fact that merchants generally are still very cautious in their buying, and scrupulously limiting their orders to their early requirements, while the mills and factories, in the presence of a very moderate demand, are keeping their production down, and in most cases running their works on short time. There is, however, looking at the Hardware field, a good deal of unevenness in the demand. Makers of heavy stuff and of products which are marketed mainly to the railroads or for larger enterprises have most reason to complain of a sluggish and hand to mouth demand, while those who produce seasonable goods and articles used mainly by the farmers are pretty well occupied. Even in the strictly Hardware line some classes of goods are moving much more freely than others. This condition is illustrated in the case of a prominent manufacturing concern whose product includes a wide diversity of goods which require different treatment: One part of the plant is running nine hours, six days; another part nine hours, five days; a larger department eight hours, five days, and a portion of the plant eight hours, three days. It is a question to what extent larger activity is waiting on the development of lower prices. It would seem in general that the matter of price is not a fundamental one at this time, and that a suspicion that lower quotations in a good many lines are to be expected sooner or later contributes to the caution of buyers. In the Hardware field, as a rule, the trade are glad to see prices maintained, at least until stocks are well reduced. The course of the market in this regard should be satisfactory. The fact that the prices of a good many important products are steady is certainly gratifying to the merchants, and the reductions which are frequently made in other lines are not excessive or indicative of a demoralized condition, and are indeed on the whole regarded as reasonable and not undesirable. Notwithstanding the fact that a return to a lower level of values is always an unpleasant process, it is generally recognized that it would be beneficial and tend to the development of a more healthful and continued movement of business in the future. Merchants and manufacturers are presumably endeavoring to make the most of the opportunities of the present, which call for different management in some respects from that which characterized their policy when the demand was large and insistent.

### Chicago.

Broadly speaking it may be said that what movement there is in the Hardware trade at least continues in the



right direction. This is evidenced by the fact that the volume of business for February shows a moderate gain over that of January and indications of a favorable nature are not lacking upon which to base expectations for a more decided increase during the present month. The comparison between the corresponding month of last year is, of course, not so favorable, save in the Northwest, where trade was seriously obstructed for several weeks in January and February of 1907 by snow blockades, which to a large extent interrupted traffic. That the demand from retail dealers will quicken under the stimulating effects of milder weather seems to be a result that may reasonably be expected. How far this will be reinforced by increased activity in manufacturing industries can only be surmised, but the depletion of railroad store stocks, due to the long continued policy of retrenchment, affords hope of freer buying from this source. In no line is there any disposition shown to anticipate future wants, and in consequence dealers are ordering more frequently but in smaller quantities. The reckless and indiscriminate slashing of prices that has been a concomitant result of other like periods of depression has so far not developed to complicate the present situation. In some lines, it is true, important concessions are not withheld when desirable business is to be had by yielding from established schedules, but all things considered values hold fairly even. Opinion varies as to how much business is halting because of an expectation of lower prices, but in any event it seems likely that the prevalent spirit of conservatism would operate against extensive commitments even at sharp reductions from current price levels. Nails and Wire continue in fair demand, and in those sections of the country where the season is more advanced specifications are frequently accompanied with requests to rush. Building Hardware and material are moving slowly, but considerable improvement is looked for in these lines within the next few weeks, when building operations will doubtless respond favorably to the influence of spring activities.

### NOTES ON PRICES.

**Wire Nails.**—There has been enough of an improvement in the demand upon mills, during the past week or so, to indicate a revival in spring trade. The volume of new business and specifications on contracts, however, show that buyers are ordering conservatively until such a time as customers' requirements become larger. This policy is also conspicuous in other Hardware lines, and can be pursued with safety, as manufacturers generally are in position to make prompt deliveries. Quotations are unchanged, as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.05
Carload lots, to retail merchants.....	2.10

**New York.**—The volume of business in small lots of Wire Nails at store is small. Nail houses are represented as maintaining regular prices, but it is reported that jobbing houses sometimes shade prices when Hardware is also sold. Regular quotations are on the basis of \$2.40 for small lots at store.

**Chicago.**—While specifications against existing contracts are being furnished in fair volume, new business is coming forward in a moderate way that indicates a strong feeling of conservatism and inclination to keep well within the lines of safety, as to future commitments. At the same time expressions of confidence in a better demand following the permanent opening of spring weather are quite general. In the meantime the mills are making shipments with promptness that contrasts sharply with the delays of last year. Prices continue firm. Quotations are as follows: \$2.23 in car lots to jobbers, and \$2.28 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

**Pittsburgh.**—Mills report a material improvement in demand for Wire Nails in the past week or 10 days, probably due to the favorable weather and to the fact that Spring trade is commencing to open up. The Youngstown Sheet & Tube Company at Youngstown

will take possession on March 16 of the Struthers, Ohio, plant of the Morgan Spring Company, and after that date will be a large producer of Wire and Wire Nails. Shipments by the mills are reported heavier and specifications against contracts are coming in better than for some time. Quotations are unchanged, as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.05
Carload lots to retail merchants.....	2.10

**Cut Nails.**—The Eastern Cut Nail Association is holding a meeting in Philadelphia to-day (Wednesday), which will make it too late for any report of the result in our columns this week. It is claimed that the irregularity in prices cannot be attributed to Eastern mills, as the opinion has prevailed that lower prices would not increase the volume of sales. Whether the prevailing sentiment at the meeting will be for a continuance of this policy, in the face of competition, remains to be seen. Demand shows no improvement, and mills continue to restrict production, so as not to pile up stocks. Regular quotations are on the basis of \$2.05 per keg, at mill. Iron Nails generally should command about 10 cents more than Steel.

**New York.**—Requirements for Cut Nails in this market are light. Regular prices are said to be adhered to by Nail houses, but it is reported that Hardware jobbers sometimes shade prices when other goods are sold. Quotations are on the basis of \$2.30 per keg for small lots, at store.

**Chicago.**—Notwithstanding the reduced output of the mills the demand is insufficient to support the market on an even keel and in consequence more or less irregularity in prices exists. Neither the mills or jobbers are proof against the temptation of business offered at reduction of 10 cents a keg below regular quotations. Chicago quotations are as follows: Iron Cut Nails, carloads, to jobbers, \$2.38; to retailers, \$2.43; Steel, to jobbers, in carloads, \$2.28; to retailers, \$2.33.

**Pittsburgh.**—New demand for Cut Nails does not show any improvement, and on the small amount of new business that is being placed with the mills, prices are being shaded over official quotations 10 cents a keg or more. It is stated that only 30 to 35 per cent. of the Cut Nail capacity is active at the present time. The mills continue to cut down production rather than pile up stocks of Nails in the face of the present light demand. We quote Steel Cut Nails at \$1.90 to \$1.95, f.o.b. Pittsburgh, for carload lots, and about \$2 for small lots, to which freight to point of delivery is added. Iron Cut Nails are about \$2.05, at maker's mill.

**Barb Wire.**—An increase in new business for the past week is reported by the mills, while contract specifications are also larger. Prices are being maintained at regular quotations, according to information from the mills. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.20	\$2.50
Retailers, carload lots.....	2.25	2.55
Retailers, less than carload lots.....	2.35	2.65

**Chicago.**—Although the bulk of the business up to the present time has been originating in the South the approach of milder weather is gradually bringing it northward. Barring unfavorable conditions, that would operate to retard spring work, considerable additions to the present moderate amount of new business may be expected from this section within the next few weeks. We quote as follows: Jobbers, Chicago, car lots, Painted, \$2.38; Galvanized, \$2.68; to retailers, car lots, Painted, \$2.43; Galvanized, \$2.73; retailers, less than car lots, Painted, \$2.55; Galvanized, \$2.85; Staples, Bright, in car lots, \$2.35; Galvanized, \$2.65; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

**Pittsburgh.**—There has been a perceptible improvement in demand for Barb Wire in the past week, new business being placed with the mills showing a considerable increase. Specifications against contracts are better, and shipments by the mills are heavier than for

some time. Prices are firm, but unchanged, and the mills advise us they are being strictly maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.20	\$2.50
Retailers, carload lots.....	2.25	2.55
Retailers, less than carload lots.....	2.35	2.65

**Plain Wire.**—A greater activity in demand encourages the mills to anticipate a steady increase in business from manufacturers of Wire Fencing. Prices are unchanged and the market firm. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carload lots.....	\$1.90
Retailers, carload lots.....	1.95

**Chicago.**—A fair amount of activity in the development of new business continues, but buyers are not disposed to overestimate their wants. The outlook for a fair trade in fencing is good, and when the fence building season is fairly open a better movement is expected. Prices continue firm and unchanged. Quotations are as follows: In car lots, to jobbers, \$2.08, f.o.b. Chicago, and to retailers, \$2.15.

**Pittsburgh.**—New tonnage placed with the mills in the past week has been larger than for some time, and shipments are also heavier. Spring trade is about to open up, and it is believed demand by the fence manufacturers and other consumers will show a steady increase from this time forward. The tone of the market is firm, but prices are unchanged. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carload lots.....	\$1.90
Retailers, carload lots.....	1.95

**Axes.**—The active solicitation of Axe business for next season began about two weeks ago, as reported in our last issue. Arrangements had been made by the manufacturers with a view to maintaining a stable market on a level approximating that of a year ago, and at the outset it seemed as if this might be accomplished. There is, however, a considerable overproduction of these goods and a prospect of a moderate season's business. Trade in Axes throughout the country has been rather light and some jobbers have carried over unusually large stocks as a result of the open winter and the difficulty in financing lumbering operations. These facts, together with the general business depression, have apparently caused anxiety on the part of some producers to be forehanded in booking a fair proportion of their output. Within a few days some slight cutting has developed, which may possibly be only temporary and exceptional. Prices are by no means high, and it is argued with good reason that reducing them will not lead to any increase in the season's business.

**Stove Boards.**—As stated in our last issue, a new and higher schedule of list prices has been adopted by leading manufacturers of Stove Boards. Although it is subject to a greater discount than heretofore, there is a resulting net advance in the cost of Boards amounting to about 10 per cent. The new list, on which the regular published discount is 55 per cent, is as follows:

Wood-Lined, Square.						
Inches .....	24 x 24	26 x 26	28 x 28	30 x 30	33 x 33	36 x 36
Per dozen.....	\$13.20	\$15.00	\$18.00	\$19.80	\$25.80	\$32.40
Wood-Lined, Oblong.						
Inches .....	24 x 36	26 x 32	28 x 34	30 x 38	32 x 42	
Per dozen.....	\$16.80	\$18.60	\$21.00	\$24.00	\$28.80	
Paper-Lined, Square.						
Inches..18x18	24x24	26x26	28x28	30x30	32x32	34x34 36x36
Per doz.	\$7.80	\$9.00	\$9.84	\$10.92	\$12.96	\$14.76 \$16.80 \$20.40
Paper-Lined, Oblong.						
Inches .....	18 x 24	24 x 36	26 x 30	28 x 32	30 x 36	32 x 42
Per dozen.....	\$8.76	\$12.60	\$12.60	\$14.40	\$16.80	\$20.76
Paper-Lined, Embossed, Round.						
Inches .....	24	26	28	30	32	34 36
Per dozen.....	\$8.04	\$9.00	\$10.08	\$11.28	\$12.96	\$14.52 \$18.00
Paper-Lined, Embossed, Square.						
Inches..18x18	24x24	26x26	28x28	30x30	32x32	34x34 36x36
Per doz.	\$6.96	\$8.04	\$9.00	\$10.08	\$11.28	\$12.96 \$14.52 \$18.00
Paper-Lined, Embossed, Oblong.						
Inches .....	18 x 24	24 x 36	26 x 30	28 x 32	30 x 36	32 x 42
Per dozen.....	\$7.80	\$11.64	\$11.64	\$12.60	\$14.40	\$18.00

**Enterprise Mfg. Company.**—Under date of March 2, the Enterprise Mfg. Company of Pennsylvania, Philadelphia, Pa., has announced new list prices on many of its lines. Declines are shown in the list on Meat and Food Choppers, and particularly on knives, plates and other parts for these articles. On other lines the changes represent for the most part moderate advances on former list prices. The lists are given herewith, together with the regular printed discounts applying to the different lines, these in all cases remaining unchanged:

*Meat and Food Choppers.*—(Discount, 25 per cent.)

Numbers.									
5	10	20	12	22	32	222	232	422	432
\$1.75	\$2.50	\$5.00	\$2.25	\$4.00	\$5.00	\$6.00	\$8.00	\$7.00	\$9.00 each.

*Meat and Food Chopper Parts.*—(Discount, 25 per cent.)

20, 120									
Nos. 5 & 12 & 422 & 432 & 42 & 242									
Knives, regular.....	\$0.15	\$0.18	\$0.25	\$0.40	\$0.50 each.				
Plates .....	.20	.35	.50	.65	3.00 "				
Plates, 1/2-in.....	.40	.50	.65	1.30	3.60 "				
Plates, 5-64-in.....	.60	.75	1.00	2.00	7.50 "				
Feed Screws.....	.35	.55	1.00	1.50	5.00 "				
Rings .....	.18	.25	.50	.65	2.00 "				
Cranks .....	.18	.20	.35	.50	.85 "				
43 & 51 & 62 & 66 &									
Nos. 41 44 52 72 56 76									
Knives (tool steel)...	\$0.40	\$1.65	\$1.65	\$2.75	\$1.65	\$2.75 each.			
Plates .....	.65	3.00	3.00	5.50	3.25	6.75 "			
Plates, 5-32 & 1/2 in...	1.30	3.60	3.60	6.75	4.00	7.50 "			
Plates, 5-64-in.....	2.00	7.50	7.50	17.00	8.00	18.00 "			
Feed Screws.....	4.00	6.25	5.00	17.50	5.00	17.50 "			
Rings .....	1.30	2.00	2.00	4.50	3.25	7.50 "			
Thrust Bearings.....					10.50	18.50 "			

*Sad Irons.*—Discount, 12 1/2 per cent.)

Per dozen.				
Nos. E50 E55 E60 E65				
Nos. 1, 2 or 3, with "The Best" Handles.....	\$7.00	\$6.75	\$7.75	\$7.50
Nos. 1, 2 or 3, without Handles.....	4.50	4.25	5.25	5.00
No. 4, with "The Best" Handles.....			9.50	9.00
No. 4, without Handles.....			7.00	6.50

Per dozen.				
Nos. E30 E40				
Nos. 1, 2 or 3, with No. 200 Combination Handles.....	\$9.00	\$10.00		
Nos. 1, 2 or 3, without Handles.....	6.00	7.00		
Nos. 70 75 76 77 85 87				
\$5.50	\$5.25	\$5.50	\$5.25	\$8.75 \$7.00 per dozen.

*Detachable Meat Hooks.*—(Discount, 40 per cent.)

Nos. 1 2 3			
\$10.00	\$12.00	\$14.00	per gross.
Nos. 212 214 512			
Coffee Mills.....	\$35.00	\$40.00	\$15.00 each.

Discount, 16 2/3 per cent.

Nos. 1 2	
Lawn Sprinklers.....	\$3.75 \$3.00 each.

Discount, 25 per cent.

No. 49	
Vegetable Slicer.....	\$8.00 each.

Discount, 20 per cent.

1-quart. 8-quart.	
Tincture Presses.....	\$3.75 \$10.00 each.

Discount, 20 per cent.

Nos. 1 2 18		
Cherry Stoners.....	\$8.00 \$9.00 \$11.00 per dozen.	

Discount, 25 per cent.

No. 34	
Ice Shredders.....	\$18.00 per dozen.

Discount, 25 per cent.

**Sheet Metal Products.**—Business in Roofing Sheets, Conductor Pipe and Eaves Trough, Elbows, &c., continues in light volume, merchants showing no disposition to enlarge their stocks, which are now low. Low prices still prevail on Leader and Gutter, quotations depending on the locality and class of trade. Competition is keen in all sections, but as usual is sharpest in the West. Tinware, Enameled Ware, Galvanized Ware, &c., are dull but fairly steady. Dripping Pans are unchanged.

**Coil Chain.**—There is no improvement in the market for Coil Chain, although no lower quotations are reported. Competition for all orders in sight is exceedingly keen.

**Tacks.**—The tone of the market for Tacks is uncertain. Comparatively low prices are being made by a few producers, and some revision of the quotations of leading manufacturers would not be unexpected.

**Bolts and Nuts.**—In spite of the attempt to tone up the market, quotations on Bolts and Nuts continue to show irregularity. Nuts, however, are steadier at the reduced prices recently announced, than are Bolts. Buyers are finding it wise to scan quotations carefully, as some manufacturers are now making special concessions



on one line and some on another, according, no doubt, to their stock on hand. On the whole, heavy goods are somewhat easier than smaller sizes. Stove Bolts, Tire Bolts, &c., continue steady.

**Picks, Mattocks, &c.**—Prices on Sledges, Picks, and Mattocks, and other heavy tools have ruled fairly steady since the reductions announced some time ago. Business is in light volume, but it is asserted that there is little inducement to cut below the present level.

**Machine Screws.**—The market in Machine Screws continues somewhat irregular, and on both cut and rolled thread Screws in iron and brass concessions in price are obtainable.

**Sash Cord.**—It is generally agreed that the volume of business in Sash Cord is surprisingly good, especially as regards the product of leading manufacturers. No disposition is shown to make concessions on established prices.

**Rope.**—Market conditions show no improvement over those of a week ago. Jobbers are conservative and business is with rare exceptions confined to less than carload lots, to meet immediate requirements. Manufacturers are, of course, anxious to make sales, consequently there is some irregularity in quotations, particularly when desirable orders are in sight. Manila Fiber is about  $\frac{1}{2}$  cent lower than last week, and Sisal Fiber has advanced about  $\frac{3}{8}$  cent during the same period. The following quotations for base sizes fairly represent the market: Pure Manila,  $10\frac{3}{4}$  to  $11\frac{1}{2}$  cents; B quality grades down to 8 to 9 cents; Pure Sisal,  $7\frac{1}{2}$  to 8 cents; lower grades Sisal,  $6\frac{1}{2}$  to 7 cents; No. 1 Jute,  $\frac{1}{4}$ -in. and up,  $6\frac{1}{4}$  cents; No. 2 Jute,  $\frac{1}{4}$ -in. and up,  $5\frac{1}{4}$  cents.

**Window Glass.**—It is stated on good authority that fires have been lighted in factories with a capacity representing from 1200 to 1400 pots, but that owing to labor troubles there is not an actual production exceeding the capacity of 700 to 800 pots. The fact is recalled that last year at this time the American Window Glass Company had a stock on hand approximating 1,000,000 boxes, and that its factories were all running practically full, also that in the neighborhood of 2400 pots of handmade Glass were in operation. From present prospects it would appear that the production of Glass this year will equal the consumption, and that the distribution will be unequal, as the West is likely to require a much larger proportion than the East. A meeting of the Eastern Window Glass Jobbers' Association was held last Friday at Atlantic City, but owing to the small representation present adjournment was taken for about 30 days. In this market conditions remain as for some time, and regular quotations are unchanged. Local demand is also exceedingly light. The minimum prices recommended by the Eastern Window Glass Jobbers' Association are as follows: Single strength, 90 and 25 per cent.; double strength, 90 and 30 per cent. discount from jobbers' list. These prices are, however, not closely adhered to.

**Linseed Oil.**—The week has been a quiet one in this market, and sales have been restricted to small lots for actual requirements. Buyers have no reserve stocks on hand, and crushers are supposed to have light supplies of both Oil and Seed. A brisk spring demand would probably send Oil prices up. Local quotations are as follows: In five-barrel lots, State and Western Raw, 41 to 42 cents; City Raw, 43 to 44 cents per gallon. Boiled Oil is 1 cent per gallon advance on Raw.

**Spirits Turpentine.**—A lack of business at Southern points caused a falling off in prices, and this condition has been reflected in this market, where hand to mouth buying has been the rule. In view of the present market conditions, it is interesting to recollect that a year ago quotations at this point were 77 to  $77\frac{1}{2}$  cents for Oil Barrels. The New York market is represented by the following quotations: Oil Barrels, 51 to  $51\frac{1}{2}$  cents; Machine Made Barrels,  $51\frac{1}{2}$  to 52 cents.

THE ELLER MFG. COMPANY, Canton, Ohio, manufacturer of an extensive line of Sheet Metal Goods, is sending out a convenient 6-in. rule and paper cutter combined. The company will be pleased to furnish these in response to any requests from the trade.

### Death of Joseph Keene.

**A**FTER an extended illness, Joseph Keene died on March 4 at his residence, 6601 Harvard avenue, Chicago. For 37 years Mr. Keene was closely identified with the Hardware business in that city, where he was well and favorably known. Born in London, England, in 1849, Mr. Keene came to this country as a boy and located permanently in Chicago in 1865. In 1871 he in company with his brother established a Hardware business on Clark street, between Polk and Harrison, the firm being known as Keene Brothers. A few months after the firm was organized and started in business the city was devastated by the great Chicago fire, which fortunately spared the buildings of their immediate vicinity



JOSEPH KEENE.

and theirs was among the few firms whose property escaped that memorable conflagration. After retiring from this business he founded the Chicago Spring Butt Company, of which he was secretary and treasurer, and with which he was connected up to the time of his death. Mr. Keene was a member of the Art Institute of Chicago, in the affairs of which he took an active interest. He is survived by his wife and one son, Wm. J. Keene, president of the Chicago Spring Butt Company.

### Death of Evans Nelson.

**E**VANS NELSON, president of the Lawson Mfg. Company, died at his home in Chicago on March 4 after a brief illness from pneumonia. Mr. Nelson was born in Denmark, August 4, 1867, and came to this country in 1876. From the time of its organization he was connected with the Lawson Mfg. Company, and, being elected its president four years ago, continued in that office to the time of his death. He was widely known to the trade, and counted in the local circle of his friends were many of the well-known Hardwaremen of his home city. Mr. Nelson was a member of the Royal Arcanum. He is survived by his wife and one son seven years of age. At the funeral services, held at his residence March 6, the following persons from among his friends of the Hardware trade acted as pallbearers: J. H. Gormley, Bullard & Gormley Company; James Swanson, Orr & Lockett Hardware Company; Chas. Beyfus, Yale & Towne Mfg. Company; Bert Morse, P. & F. Corbin; W. H. Bennett, Jr., Russell & Erwin Mfg. Company; Henry Ernest, Lawson Mfg. Company.

THE NORVELL-SHAPLEIGH HARDWARE COMPANY, St. Louis, Mo., whose recent striking advertisements styled "Uncle Sam's Boys" have attracted much attention, has responded to numerous requests for copies of the advertisements by collecting them in pamphlet form for distribution. The pamphlet is attractively bound with the traditional representation of Uncle Sam in colors on the cover, and contains in addition to the historical matter effective advertisements of the company's lines.

## House Debate on Parcel Post Project.

FROM OUR SPECIAL CORRESPONDENT.

WASHINGTON, D. C., March 10, 1908.

FOR the first time since the proposition to establish a domestic parcel post became an issue of real importance to the merchants of the country, the debate in the House upon the annual post office appropriation bill, which will have been passed before this issue of *The Iron Age* reaches its readers, was marked by an exceedingly animated discussion of this subject occupying several hours and ending in the rejection of the Postmaster-General's recommendations. The debate on the rural parcel post project was exceedingly interesting and brought to the front a new champion of the rural merchants of the country in the person of Representative Sylvester C. Smith of California, who has made an exhaustive study of the subject and whose logical argument against the recent paternalistic tendencies of the postal service was followed closely by his colleagues on the floor, who manifested their approval by frequent applause. The rural parcel post plan was advocated in the debate by Representatives Hardwick of Georgia and Sims of Tennessee, minority members, the latter being the introducer of the original rural parcel post bill, with certain provisions of which the Postmaster-General now takes issue.

### Representative Smith's Address.

Taking up the question of the proper function of the mail service, Mr. Smith contended that it should be limited to the dissemination of information, and that if so limited no complaint against the annual postal deficit would have a sound basis. Such a deficit, he said, would be chargeable to our educational system, the value of which could not be measured in dollars and cents. Referring to the transportation of merchandise and the Postmaster-General's rural parcel post plan, Mr. Smith said:

The carrying of parcels of merchandise, however, is a very different thing. It bears scarcely no relation whatever to the Governmental function above referred to. One is essentially education, the others purely commercial.

While this country has long carried some merchandise in the mails, it has not encouraged that department of the service. Prior to 1863 the weight of the package was limited to 3 lb., and since then it has been but 1 lb. more, the rate being 1 cent for each ounce or fraction thereof—16 cents the pound.

The Postmaster-General's plan now is to enlarge the weight of the package received and reduce the rate, thus openly bidding for this line of business. It is true he limits the scope of these operations to the minimum, confining the origin and destination of each package to the rural routes out of a common terminus.

### An Entering Wedge.

One is strongly inclined to regard this as merely an entering wedge. I am perfectly sure that it will not satisfy the people; but, on the contrary, will operate to increase the demand for this form of governmental service generally throughout the country. It has not been asked for by either the merchant on the routes, nor by the patrons served by them. It would accommodate but a small per cent. of the people, and those whose rights to such a service are no more urgent than that of many others. The people in and about the thousands of small villages strung along the railroad will demand and should receive as good facilities for trading at the larger towns and cities as those along the rural routes; and in the West the people living in the remote valleys, off the main lines of communication, and served only by star route mails, are more in need of mail privileges in their trading than either of the former groups, because their isolation makes it more difficult to visit the larger centers of trade. These, as well as those in and about small villages, usually have but one or two local stores at which to trade, stocks from which to select are small, and the belief at least prevails that prices are high. Rural routes usually radiate from the larger centers and swinging around in belt line fashion are at no point far from a city of considerable size. Hence the patrons served are the best able of either of these three groups of people to reach a satisfactory trading place.

### Trading by Mail Not a Desirable Habit.

I am equally certain that the merchants at the beginning of the rural routes do not want their customers to form a habit of trading by mail. They want them to come to the store in person to do their buying. Their advertisements teem with special offers to purchasers in person. Cranberries to-day, some garden tool to-morrow, with laces or gingham, are offered at frequent intervals below cost price in order to bring the farmer or his good wife into the store, the expectation being that once there they will see and buy many other things, some of which, at least, might have been done without had they not been pressed on their attention by the merchant.

### From a Social and Mental Standpoint.

too, it is not profitable, but absolutely injurious, to the country to induce farmers and their families to remain too close to the farm. There is no class of people in the country who work as many hours a day as these, and none who normally enjoy as little of the cheer and benefit of association with others as our rural folk. They recreate too little already; they are predisposed to tarry at home and toil incessantly—a thing especially true of the patient, industrious wives of our farmers—and to take away their chief incentive to take a holiday—the occasional trip to town for necessary purchases—is a matter of much actual seriousness.

The demand for the larger postal service comes chiefly from the rural districts, but it is not sought that they may trade more easily at their home town or city, but because they hear of advantages to be had at a more remote metropolis. "Distance lends enchantment" to the view of those properly in search of bargains, and whether the Postmaster-General so meant it or not, the real question to be met is whether it is wise for the Government to embark on a wider field of the carrying trade of the country.

### An Appeal Against Paternalism.

Mr. Smith made a strong appeal against paternalism in the Government service, protesting that purely business activities should not be engaged in. He said:

Of late years there has been a growing tendency to say, when dissatisfaction arises over some existing condition of things, "Let the Government do it." Neither political party is free from this charge, but both have sought to curry favor in this way until, undoubtedly, many seeds of Socialism have taken root. Thoughtful men in neither party favor that end, and probably a large majority believe that it would prove fatal to our institutions. Yet, not a few well meaning citizens urge us to take "just this step" in that direction, and to gain a temporary advantage we are coming to suggest such things quite too often.

Carrying produce to market is no part of the function of this Government, as planned by the fathers, any more than the planting or harvesting of the crop would be. There is not a single argument in favor of the parcel post that does not tend to prove by the same argument that the Government should set up a shoe factory or open a bakery for all. Each and all would be outside the realm of government as planned by the architects of the nation, and foreign to that interesting and beneficial spirit of individualism which has brought us such marked results as a people.

Rest assured that if we begin by carrying the dairyman's milk to the creamery we will end by feeding the cows and manufacturing the butter. There will be no stopping place between these stations. And why, indeed, should one be sought? If that supposedly all powerful thing vaguely referred to as "the Government" is to carry one business burden for us, why not load them all on? Father Government is not supposed to know either weight or weariness.

### International Postal Service Rates.

Referring to the Postmaster-General's argument that the rates and conditions of the international postal service are more favorable than those of the domestic service, Mr. Smith refuted these contentions most convincingly in part, as follows:

But in order to induce a beginning in this new departure it is pointed out that we already carry larger parcels and at lower rates to foreign points than between two domestic offices. This is true in a sense. But 4 lb. can be sent from one post office in the United States to another and the rate is 16 cents per pound, while as high as 11 lb. may be mailed at a domestic office if the destination of the parcel be a point in certain foreign countries and at 12 cents per pound.

These figures, while proving the contention just stated, largely refute it. Literally we may send larger packages out of this country than from point to point at home. But what does it signify that we may send 11-lb. parcels to Barbadoes or the Windward Islands? Who wants to traffic with these unimportant countries? I venture to say



that not one man in a thousand who advocates the parcel post ever had occasion to send a parcel of any weight to one of these countries. Most assuredly the farmers, mechanics, &c., are not benefited by this privilege.

It will be observed that the countries with which we have greatest commercial intercourse exchange only the 4-lb. 6-oz. parcel with us—namely, Great Britain, Germany, Norway, &c. We have no parcel post convention with France allowing more than our domestic 4-lb. parcel.

The rate of postage charged on this international business should be noted. A single ounce, or any weight up to 1 lb., is 12 cents; our domestic rate is but 1 cent for each ounce. Similarly, any fraction over a pound takes the rate of the full pound in international business. Thus 1 ounce would cost from 12 to 20 cents international, against 1 cent domestic; or 1 lb. and 1 ounce international would cost 24 to 40 cents, against 17 cents domestic. So we have not discriminated so badly against local business after all.

#### Welfare of Towns and Villages.

In conclusion Mr. Smith appealed to the House not to sanction any measure that would tend to injure the towns and villages of the country or reduce the prosperity of the people residing therein. In this connection he said:

How far does our present service, limited to a 4-lb. parcel, meet the real needs of the people? Are we not meeting the practical requirements of the people? Practically very article of wearing apparel of women and children that would be intrusted to the mails may now be sent, and a pretty good suit of clothes for a man will be carried. A very wide range of presents may be exchanged by post—one of the primary purposes of this service—as witness the volume of business done at the holiday season. Local merchants without competition find in our mail privileges a very salutary restraint on their prices, for their customers may send away for a large part of their daily needs if local conditions justify it. In stress of weather or of work the post will bring a temporary supply of groceries, but leaves intact the meritorious incentive for the farmer and his wife to drive into town occasionally.

But the postal rates and privileges do not and should not permit buyers to send their trade to remote cities to the destruction of local businesses. The rights of the country merchant are as much a proper thing for our consideration as are the desires of the buyers. Every store that is built adds value to the surrounding farms, and the larger the town or city the greater the value of the adjacent holdings and the greater the opportunities of all kinds of craftsmen. If it were proper for the Government to embark in the carrying trade, it would not be wise for it to throw its weight into the balance against the country towns, for these rallying points are of inestimable value socially, politically and financially to the whole country. They give equilibrium and homogeneity of the very first importance to our institutions. It will be a sad day for the country if it shall ever resolve itself into the two extremes—the great city and the uninterrupted rural district. The country town is the bond that binds all avocations together and makes the nation truly democratic in thought and custom.

#### Mr. Hardwick in Defense of Parcel Post.

The first champion of the Postmaster-General's plan to address the House was Representative Hardwick of Georgia, whose advocacy of the rural parcel post proposition occasioned some surprise, not only because members of the minority are almost unanimously opposed to paternalistic legislation, but also for the reason that the mail order houses have recently made so much progress in the South, and especially in Georgia, as to cause no little apprehension among Southern retail merchants. Mr. Hardwick's speech will be recognized as a very close paraphrase of one of the numerous addresses delivered by the Postmaster-General during the last Congressional recess. Its general scope will be gathered from the following brief extract:

I am deeply disappointed at the failure of the Committee on Post Office and Post Roads to include in this bill legislation to carry into effect the recommendation of the Postmaster-General for a parcel post. If the committee had seen fit to confine the system strictly to rural routes, I should have been satisfied with that, and it is difficult to see how any member of this body, who represents a constituency that is even partly rural, or who has the interests of our country people at heart, could have opposed it. For this service the scale of charges would be, according to the departmental recommendation, 5 cents for the first pound and 2 cents for each additional pound up to 11 lb., which is the limit in weight proposed by the Department, so that the total charges for a package weighing 11 lb. would be 25 cents.

The establishment of this system would be a great boom to our rural people. It would go hand in hand with our present rural mail delivery system, utilizing the machinery already provided for that system using the same men, the same horses, and the same vehicles, or certainly not more expensive ones than are now provided for the delivery of the rural mail. It would be self-sustaining and self-supporting, and would enable us from its profits to still further increase the pay of our rural carriers without taking a cent from the public treasury. It would greatly increase the comfort and convenience of life in the country. The same principle of economy that is the basis of our rural mail delivery is the basis of this proposed parcel post delivery.

So far from injuring the trade of our retail merchants in the small towns and even in the rural districts, this system would improve and extend that trade, for the small merchant would always have a cheap, prompt and reliable delivery service for his own use. The objection is sometimes urged against the proposition that it is paternalistic in its character; that it is no part of the Government's duty to engage in the delivery of parcels, or in the transportation of merchandise of any kind. The same argument was urged against the establishment of our Post Office Department itself. In that case the argument has reduced itself to such a practical absurdity that few, if any, now make it, and its ridiculousness is now universally conceded. But I would like to inquire what is the difference in principle between transportation by the Government of sheets of paper, either printed or written, and the transportation by the Government of other articles of merchandise that are just as important and just as necessary as newspapers or magazines or letters for the development of our civilization and the improvement of the conditions of life among our people. If there is any difference, it is so finespun, so hairsplitting that I cannot perceive it.

In conclusion Mr. Hardwick made a statement that will prove gratifying to the retail interests of the country as showing the apparent hopelessness of the campaign to secure the enactment of a rural parcel post law. In this connection, he said:

I confess that I am disappointed at the failure of the Post Office Committee to include in this bill provisions for a parcel post system, limited to rural routes. If the committee had found the point of order insisted on, it could have easily overcome that difficulty by an appeal to the Committee on Rules. No individual member of this body can, however, hope to follow that road successfully. The responsibility for the failure of the committee and of this House to follow the recommendation of the Republican Postmaster-General must and can only rest on the shoulders of the Republican party, for that party, through its majority membership on the Committee on Post Offices and Post Roads, has declined to pursue the only practical road by which consideration could be obtained for this most meritorious measure. I do not see how the Republican party can hope to escape this responsibility. It certainly cannot do so.

Representatives Griggs of Georgia, Gaines of Tennessee and Hardy of Texas spoke briefly in favor of various extensions of the weight limits of packages eligible to transportation on rural routes and reductions in the rates thereof. Chairman Overstreet, however, intimated that he would make the point of order against all such changes that new legislation can be incorporated in an appropriation bill only by unanimous consent, which operated to prevent further consideration of these propositions. The bill was practically perfected before the House adjourned to-day and will be voted on to-morrow.

A. H. BRIGGS, 136 Liberty street, New York, has recently been appointed by the Helwig Mfg. Company, St. Paul, Minn., its New York representative for the sale of the line of Helwig Pneumatic Tools. These include Pneumatic Hammers, Reversible Pneumatic Motors, Pneumatic Staybolt Clippers, Improved Self-Feeding Flue Expanders and other labor saving devices. Mr. Briggs is experienced in metal working tools, having been long identified with both the L. S. Starrett Company and the Frasse Company. Mr. Briggs at the beginning of this year started in business for himself, as a representative of tool manufacturers.

W. J. FOWLER of the Hardware firm of Fowler & Co., Greenville, Mich., died February 26. He was born in Kinderhook, N. Y., in 1838 and went to Michigan in 1870. He had been in the Hardware business for 30 years.

## Colorado Retail Hardware and Implement Association.

THE sixth annual convention of the Colorado Retail Hardware and Implement Association was held on the 20th, 21st and 22d ult., at the Albany, Denver. It was largely attended and the deliberations were interesting and profitable. Governor Buchtel was present at the first afternoon session, and delivered a felicitous address of welcome.

### Convention Committees.

After opening the exercises in a brief address President Harding announced the following committees to serve during the convention:

**AUDITING:** O. A. Cramer, Monte Vista; C. C. Huddleston, La Mar; A. Duenweg, Brush; Mr. Green, Ordway; C. Anderson, Ft. Collins.

**RESOLUTIONS:** John A. Steele, Gunnison; Fred Moys, Boulder; A. B. Meservey, Colorado Springs; John Spriesterbock, Alamosa; H. R. Quillitch, Trinidad.

**NOMINATING:** A. B. Corbin, La Junta; Geo. Willson, Florence; Preston Day, Castle Rock; B. L. Van Vechten, La Jara; E. A. Miller, Timnath.

John Linder, Golden, was appointed sergeant-at-arms.

### Secretary Unfug's Report.

In his annual report as secretary, Adolph Unfug, Walenberg, included a summary of the proceedings of the National Retail Hardware convention at Boston last year, which he attended. Referring to the subject of Hardware mutual fire insurance, he spoke as follows:

It is evident that our members are not taking very kindly to this line, but I beg to state right here that you are making a great mistake in not informing yourselves as to rates and stability of this kind of insurance. By referring to the statistics of the State of Colorado we find that the average rate of premium paid by the insuring public during the last 23 years has been \$1.62 per \$100. We also note in this connection that the rate of fire losses during this period has been 44-2-10 cents. To make it still plainer, the stock companies during the last 23 years have collected from our people \$1.62 for every \$100, used 44-2-10 cents to pay fire losses and retained for their profits and expense \$1.178-10. In face of such figures do you believe that it is just and right that you should give them your business?

He also touched on the parcel post question, and called attention to some manufacturers who were selling their goods directly to the consumers of the State, when they failed to place their line with the local merchant.

Despite the existence of the itinerant vender law Mr. Unfug stated that a Vehicle manufacturing company had been very active in "traveling" its Vehicles through the State, but so far as he was advised the company's representatives had been arrested in every county in which the goods were offered for sale. In his own town they were found guilty and fined, but an appeal was taken to the county and district courts, both of which confirmed the decision of the lower court. A question of unconstitutionality was raised, but the higher courts refused to rule and nothing was left but for the defendants to appeal to the Supreme Court, where the case now rests, awaiting decision. Should the Supreme Court sustain the appellant Mr. Unfug suggested that it would be well for the association to take the matter up and have some good attorney prepare a bill to be presented at the next session of the Legislature, with a view to ridding the law of its unconstitutional features.

Mr. Unfug's report as treasurer showed that the receipts during the past year, with the cash on hand at its beginning, amounted to \$832.55. The disbursements were \$430.34, leaving cash on hand at present time, \$402.21. Quite a number of the members of the association, it was stated, were in arrears for dues, and it was recommended by the Auditing Committee that a special effort be made to collect these dues at an early date.

### UNREASONABLE EXPRESS RATES.

Albert L. Vogel addressed the convention on the subject of excessive express rates, speaking in part as follows:

As you know, owing to the great distances in our country and to the slowness of freight, many goods have to be shipped by express. From New York to Omaha, a

distance of 1400 miles, the rate is \$4.50, but from Omaha to Denver, a distance of only 530 miles, the rate is \$4.

The express companies talk a great deal about the volume of business east of the Missouri River, but the volume of business west of the river is constantly growing, and especially is this true of Denver. The agent of Adams Express Company admitted in Washington that business had increased three times in the past 15 years, but that the rate had never been lowered in the past 18 years.

The whole trouble lies in the fact that the Missouri River is made the basing point, and Colorado has to pay two rates. I told the committee in Washington that they should make Colorado common points basing points.

There are no through lines from New York to San Francisco, or vice versa. Every package has to be unloaded and reloaded at Chicago. From San Francisco to New York the rate is \$2 more than from Chicago to New York, while Denver is plus \$2.50. We thus pay 25 per cent. more than San Francisco.

If a jewelry house ships to Denver from New York and reships to San Francisco, the rate is \$17.50, but the man at St. Joseph, Mo., can reship for a \$14 rate.

This applies to Utah points also. A Denver man reships New York goods to Utah at a \$12.75 rate, while the Omaha man pays only \$10.50.

Denver, virtually for a 500-mile haul, pays \$4 express rate, where other people only pay \$2.

### Figures Showing Discrepancies in Rates.

I have prepared a few interesting figures which show many discrepancies in rates, but in every case the man at the river is able to ship out at a better rate than the Denver man.

10-lb. package, New York to Salt Lake City, via Denver, costs .....	\$1.85
10-lb. package, New York to Salt Lake City, via Omaha, costs .....	1.60
20-lb. package, New York to Salt Lake City, via Denver, costs .....	3.00
20-lb. package, New York to Salt Lake City, via Omaha, costs .....	2.55
30-lb. package, New York to Salt Lake City, via Denver, costs .....	4.23
30-lb. package, New York to Salt Lake City, via Omaha, costs .....	3.45
10-lb. package, New York to Pacific Coast terminals, via Denver, costs .....	2.15
10-lb. package, New York to Pacific Coast terminals, via Omaha, costs .....	1.90
20-lb. package, New York to Pacific Coast terminals, via Denver, costs .....	3.70
20-lb. package, New York to Pacific Coast terminals, via Omaha, costs .....	3.40
30-lb. package, New York to Pacific Coast terminals, via Denver, costs .....	5.55
30-lb. package, New York to Pacific Coast terminals, via Omaha, costs .....	5.10

Do you wonder that Montgomery Ward & Co. went to Kansas City instead of Denver when they wanted to establish a distribution center for their Western trade?

The people of Denver will never get better express rates unless they keep up the fight till they do get them; that is the way the shippers along the Missouri River got reduced rates; then Salt Lake City came along and forced a reduced rate, and until Denver does the same she will never get more favorable rates.

When Montgomery Ward & Co. wanted a good distributing point in the West they considered Denver, Omaha and Kansas City, but on account of the better facilities they selected Kansas City. Now I know you are opposed to mail order houses, but in spite of that it would have been a good thing for Denver to have had a firm like that establish a branch house here rather than in Kansas City.

### Colorado Has Another Grievance Against the Express Companies.

Section 6 provides that when a shipment exceeding 7 lb. in weight is carried by more than one company it is charged separately by both, except where billed through. As the American Express comes only as far West as Hastings, Neb., and as many of your cities only have the Globe Express entering them, there is a graduate scale charged. Here are a few samples of what the double graduate means to Colorado:

7-lb. package, New York to Telluride .....	\$1.00
10-lb. package, New York to Telluride, under this rule .....	2.35
10-lb. package, New York to Telluride, without this rule .....	1.50
15-lb. package, New York to Telluride, under this rule .....	2.90
15-lb. package, New York to Telluride, without this rule .....	2.15
20-lb. package, New York to Telluride, under this rule .....	3.30
20-lb. package, New York to Telluride, without this rule .....	2.75

It appears to me where a 7-lb. package is carried through at a certain rate that a 14-lb. one should be carried at the same rate, or twice what it cost in a 7-lb. package, but this is not so.

The secretary of one of your local agencies said that



you "should be friendly with transportation companies and not needlessly harass them." But they did not get anything by being friendly and not harassing them.

If you are to get results Colorado must have a traffic bureau, not made up of railroad men or officials of express companies, but an organization of business men, and they will have to employ an experienced attorney, or they will be up against some of the finest minds in this country who have been doing nothing else for years but excusing the methods of the express companies. I hope if your organization does not take up this matter, that the business men of Denver will organize and not remain under control of the transportation companies.

#### STATE TAXATION OF CATALOGUE HOUSES.

"Taxing Catalogue Houses" was the subject of the address by F. W. Byrd, Fort Morgan, who spoke in part as follows:

In our country catalogue houses only pay taxes in the State of their origin, and then become the competitor of every retailer in every other State in the Union, and this unequal taxation we should remedy, either by legislation or through the courts, and not cease our efforts until this wrong is righted.

They come into our midst and take our trade, yet pay no State or municipal taxes. We have to build churches and schoolhouses and public roads. We educate the children and then they sell them goods in a few years.

We cannot prevent them bringing goods into our State, for the law says that no State shall interfere with the commerce of a sister State. We dare not tax them as they cross our border. Thus they enjoy the privilege of bringing their goods into Colorado and distributing them to the detriment of the local retailers. They perform none of the duties which we as citizens perform, and I feel they should be put upon the same basis of taxation that we are. "But how are we to accomplish this?" you ask. I answer: "This privilege constitutes a franchise, a right conferred by the sovereign power of the State, and one provided for nonresident corporations doing business in the State." Now if we insist on this, as in the case of insurance companies, every catalogue and mail order house will have to close their doors. It will be impossible for them to meet the local dealer on equal terms.

You may argue this privilege is not a franchise; you may say it is a privilege enjoyed by all.

But, I answer, it is a special privilege, and it should be conferred by statute, and thus a franchise would be created.

If the insurance agent who comes into our State to sell policies can be controlled and taxed, we have the right to say to the catalogue men, "You must comply with our local laws, and while we do not assess you when you bring your wares across our border, you must pay your share of taxes the same as the local dealers."

Not a single legislature, nor a court, has ever endeavored to crystallize this principle into a law. The question of franchises is only in its infancy. Until recently a franchise was not considered worth much. But the enormous profit systems that have been built up under franchise in all our large cities have proved that they are sometimes the most valuable asset a company or corporation possesses. And this system is escaping taxation in every State of the Union.

Now it may seem a very difficult matter to take this up, as our courts have not passed upon it. But it has become a very vital question to us, and until recently was in a chaotic state. But we began to protect ourselves, and the first effort was to have all nonresident firms doing business in a community represented by a resident agent or manager; but this has not accomplished as much as taxation would.

You ask, "Will it not be a hard matter to take up with our Legislature?" But it is their province to protect their constituents, and we must tell them our trade is being affected, and that we only ask exact justice. They may call when and where they please, but we must be given a fair deal and not have to pay more taxes than they do, and the taxes they pay to be employed in the same channels as those we pay. I want to say that I don't think our legislators will deny so fair a request to the people of our State. It is so plain a contention that the man who goes into a territory to dispose of goods should pay for the privilege the same as the resident dealer, that our Legislature cannot turn you down when you ask for equal taxation.

#### ADDRESS OF NATHAN ROBERTS.

Nathan Roberts, Omaha, Neb., who represented the National Retail Hardware Association, brought the greetings of that body, and then spoke in part as follows:

Experience, perhaps dearly bought, has taught us the lesson that what injures the trade of the retailer follows

up through the jobber to the honorable up to date manufacturer. I need not dwell on this except to say that it would have been wiser and better for all concerned if the manufacturer and jobber had awakened to their own best interests some years back, and refused to cater to the wants of the pirates of trade and our common enemy, and I might add not only the common enemy of the retail dealers of the country, but rather the octopus whose tentacles are ever abroad to bring within its avaricious grasp the boy, the girl, the man and the woman of the village, town and farm, changing our beautiful homes and firesides that have taken us years to rear into waste places of the earth.

The time is coming and is near at hand when the farmer and mechanic and day laborer will sit up and take notice, and realize they are slowly but surely being destroyed by what they feed upon. We believe that

#### The Patriotic Slogan of the Whole People

of this nation should be—every child in a garden, every mother in a homeroom, and individual industrial independence for every worker, in a home of his own on his own land. Concentration of trade to the large cities will surely and most certainly accomplish the most dire results, not alone in laying waste the monuments to our American civilization, but in drawing the youth of our land and the industry of our people from the country, town and village into the commercial maelstrom that is now sweeping industry and humanity into the vortex of the great cities.

This question should come home in all its force to every patriotic man within reach of my voice, "What can I do to make better the condition of my fellow man?" I will grant you that the local association, the jobbers' meetings and the manufacturers' assemblies were born in selfishness and for self-advancing interests, but we have outgrown that spirit.

"On earth peace and good will toward men," is the powerful magnet that is drawing us together for the common good of all men in this the best nation on earth. Therefore, in coming to you to-day with greetings, it is not mere idle mouthings, but that you may appreciate the fact that the national body is interested in your behalf and is in existence for the sole purpose of helping you in every way within its power.

#### Mutual Insurance Pays.

I desire to call your attention to the mutual fire insurance feature of our associations. What are you doing along this line? A member in one of our meetings of the Nebraska Association last week stated that he came to Lincoln, paid his dues, railroad fare, hotel and other expenses, and went home \$42.50 ahead of the game. Money saved on his insurance. Our yet very youthful company, the Nebraska Mutual Insurance Company, paid back to its members over \$3000 last year. The older companies are returning from 45 to 50 per cent. of their premiums and have accumulated large reserves for emergencies. These are vital matters. Look them up.

#### REPORTS OF DISTRICT SECRETARIES.

Reports of the district secretaries were read at the Friday afternoon session. Edwin Starkey for District No. 1 reported in part as follows:

District No. 1, which is better known as the Northern Colorado Implement Dealers' Association, held its annual meeting in Loveland, December 11 and 12. It was attended by representatives from almost every town north of and including Denver. While the attendance was not very large, it was agreed that it was the best meeting we have ever had.

Every dealer who came was prepared for work, the committees met promptly and did the best work we have ever had. Reports given at this meeting show that nearly every dealer in our territory is a member of the association. There are only one or two exceptions, and they are continually being prevailed upon by your secretary to become members.

We have found that if we get an Implement dealer to meet with us once, he invariably becomes an enthusiastic member; this merely shows that the much talked of thing is true, that the getting together is really the important thing.

Briefly summing up, we feel that the work we are endeavoring to accomplish in northern Colorado has met with considerable success. Competitive dealers are on more friendly terms, one with another, fair profits are being obtained from the sale of our goods, and the interest of the individual member is being guarded as closely as possible.

For 1908 we have set our dues at \$5 per member, which is over and above any dues of the State organization.

H. B. Dye reported for district No. 2. He said that on January 24 the annual meeting of the association was

held at La Junta. All present gave very favorable reports from the different sections of the district. It was resolved that merchants should educate their trade to shorter time payments, and that they should quote but one price with a discount for cash. Action favoring 1-cent. letter postage was also taken, and parcel post legislation was condemned.

For District No. 3, covering the Western Slope Mr. Smith reported that he was not able to make as favorable a statement as he would like. His section was either too prosperous or the merchants had not fully investigated the benefits resulting from organization. He had succeeded in obtaining several new members, and thought more might join if the merchants could be induced to attend a meeting.

H. W. Beers for District No. 4 rendered the following report:

The dealers of District No. 4, comprising the San Luis Valley, met at Alamosa, and effected an organization, with John Spreisterbach as president, and your humble servant as secretary, and we have been working incessantly ever since trying to get the other dealers in the valley to become members, with more or less success. I am sorry to say there are a few dealers who seem to put a brake on our work, making it hard to maintain prices. One of these men is now in Denver and has been attending this convention. We have given him application blanks, but have not succeeded in getting him to sign so far. However, we will keep on trying, as to reap full benefits of this association we must have all the dealers in our district as members.

### Resolutions.

Among the resolutions adopted as reported by the committee appointed for that purpose were the following:

#### PARCEL POST.

*Whereas*, There is a persistent and determined effort made by interests that are not in sympathy with the success of the great army of retail merchants throughout the country to secure the passage of a parcel post bill; and,

*Whereas*, We believe the passage of such a bill is in direct conflict with the growth and development of the smaller cities and towns of the entire country; and,

*Whereas*, We believe the passage of any parcel post law however modified or limited it might be in its operation, would become at once an entering wedge to secure the passage of such a law general in its application; therefore, be it

*Resolved*, That this association is unalterably opposed to the passage of any parcel post bill; and be it further

*Resolved*, That a copy of this resolution be sent to each of the Colorado Senators and Representatives.

#### POST OFFICE DIRECTORIES.

*Whereas*, There has been introduced in the Hardware Retail Association a bill designated as H. R. No. 13477, the effect of which is to permit individuals or corporations, under the guise of compiling a public directory, to secure from any postmaster in the United States a list of persons receiving mail from such post office upon payment of the expense of copying such list; and,

*Whereas*, Such a law is principally in the interests of the catalogue or mail order houses; therefore, be it

*Resolved*, That the association is most earnestly opposed to the passage of such a bill; and be it further

*Resolved*, That our secretary send each a copy of this resolution.

#### RACKET STORES, ETC.

*Whereas*, Some manufacturers and jobbers have a tendency to want to sell all kinds of store keepers regardless of whether or not they are Hardware dealers.

*Resolved*, That all wholesale Hardware houses should confine their sales to bona-fide Hardware merchants as far as possible.

#### GOVERNMENT EMPLOYEES EXEMPT.

*Whereas*, Public officials of all classes in Colorado are exempt from garnishment or attachment,

*Resolved*, That we instruct our Executive Committee to co-operate with similar organizations looking to the passage of a State law making all public officials other than Federal liable to garnishment or attachment.

#### DIVISION OF PROFITS.

*Whereas*, There should be a better division of the available profit on goods bought in Colorado as between the jobber and retailer,

*Resolved*, That our Executive Committee be instructed to confer with all Colorado jobbers and manufacturers, and endeavor to bring about an adjustment of prices which will be fair and reasonable to all parties and will be to our mutual interest.

#### MUTUAL INSURANCE.

*Whereas*, The National Hardware Mutual Fire Insurance Company is an adjunct of the National Retail Hardware Association and is maintained and operated principally in the interest of the State Hardware Association and the Hardware merchants in particular, and that other State mutuals are also entitled to our support;

*Resolved*, That we recommend that every member of this association take a portion of their insurance in the National Hardware Mutual Fire Insurance Company, and where possible also take policies with the other Hardware mutuals.

#### STATE FRANCHISES.

*Whereas*, A large portion of the merchandise coming in Colorado is shipped direct to consumers by merchants outside the State, and that said merchants are exempt from taxation in this State;

*Resolved*, That we advocate the passage of a law requiring all outside concerns shipping goods into Colorado direct to consumers to obtain a State franchise permitting them to do business in this manner, and that said franchise be proportionally taxed;

That the Executive Committee of this association be empowered to use such efforts and funds as they see fit toward the introduction and passage of such a measure;

*Resolved*, That our delegates to the National Convention be instructed to bring this matter to the attention of the National Convention.

#### SUBSTITUTIONS.

*Whereas*, Several publications are endeavoring to create the impression that merchants offering substitutions of any character for an article asked for are dishonest;

*Resolved*, That we condemn the practice of some manufacturers of inverting the names or style of package or labels of other well-known articles; that we deplore deception or misrepresentation of any kind;

That we resent the implication that a merchant offering a substitute as such is dishonest, but claim that it is in the province of good salesmanship to sell substitutes when necessary but without misrepresentation.

#### TERMS OF SETTLEMENT.

*Whereas*, There seems to be a concerted action on the part of the manufacturers of Agricultural Implements to shorten the dealers' terms of settlement for same; and,

*Whereas*, Such action will work a hardship on many of our dealers; be it

*Resolved*, That this association go on record as uncompromisingly opposed to such shortening of terms, unless such change is accompanied by a mutual reduction in price of said Implements.

#### ADVANCE FREIGHT CHARGES.

*Whereas*, The Implement manufacturers require their customers to pay cash for advance charges on freight shipments,

*Resolved*, That we request our Executive Committee to confer with the Implement manufacturers regarding the feasibility of changing this condition.

### Question Box.

Nathan Roberts, Omaha, Neb., representing the National Association, was invited to take charge of the Question Box discussion and under his leadership this feature of the meeting was interesting and instructive. Reference will be made to the work of the convention under this head in a later issue.

### Election of Officers.

The following officers were chosen for the ensuing year:

PRESIDENT, Edwin Starkey, Greeley.

VICE-PRESIDENT, W. H. Clatworthy, Fort Morgan.

SECRETARY-TREASURER, Adolph Unfug, Walsenburg.

DIRECTOR FOR TWO YEARS, John A. Steele, Gunnison.

### Other Addresses.

A stimulating and suggestive address on organization was made by Hon. Jerome Shamp, president of the South Platte Implement Dealers' Association.

Edwin Starkey made an admirable report of the proceedings of the meeting of the National Federation of Retail Implement and Vehicle Dealers' Associations, which he attended as a representative of the Colorado body. Mr. Starkey stated that about 50 delegates representing different associations and covering 27 States were in attendance at the national convention.

F. P. Moys, who is a member of the Executive Board of the National Hardware Implement Dealers' Mutual Insurance Company, made a brief address, in which he referred to the subject of mutual fire insurance. He stated that the total insurance of that company in Colorado at the present time was about \$55,000. Following his remarks Mr. Moys answered a number of questions on the subject, which were addressed to him by the members. Mr. Spreisterbach said that he was insured with the National Company and that the insurance was perfectly satisfactory and the rate very low.



# Pennsylvania Retail Hardware Association.

## SEVENTH ANNUAL CONVENTION.

**A**N exceedingly important and, on the whole, very successful meeting of the Pennsylvania Retail Hardware Association was held March 4 and 5 at Cambridge Springs. The Rider Hotel, which was the headquarters of the association, was found to be admirably adapted to

the requirements of the meeting, and the members and their many guests were given every attention and made thoroughly at home. The theater of the hotel, in which the meetings were held, not only served as a most suitable convention hall, but, opening, as it does, on the main lobby, could not have been better located to secure full and prompt attendance. The exhibition hall was also near at hand, so that the merchants could very readily pass from one scene of interest to the other, securing more than usual attention to the meetings on the one hand and to the exhibits on the other.



J. F. HOWE.

one hand and to the exhibits on the other.

### Spirit of the Convention.

While the attendance was not large in proportion to the number of merchants in the State, the convention was characterized by a hopeful and even enthusiastic spirit. It was brought out in the secretary's report and in addresses made by a number of members and visitors that there are more than 2000 firms in Pennsylvania who are entitled to membership in the association, and in view of the wealth of the State and its commanding position, industrially and commercially, it was recognized that it should have one of the largest and most useful associations in the country. While the growth of the association has been slow, it was the feeling of the members that a good foundation had been laid, and that the plans consummated at the convention would probably result in largely increasing the membership and adding to the usefulness of the organization. A reason for anticipating the success of the association is found, however, not only in the number of merchants in the State, but in the ability and caliber of many of the Hardware merchants, who are already actively identified with association work. A further augury of good is found in the fact that while there were several somewhat difficult and perplexing questions considered, there was entire harmony and good feeling from beginning to end.

### Opening of the Meeting.

In view of the fact that many of the members were not expected until Wednesday, the opening of the convention was deferred until that date, although the programme called for a meeting on Tuesday. The wisdom of this was seen when the trains on Wednesday morning

brought some of the members from the more distant parts of the State, as well as some from neighboring towns, enabling the business meeting to open with a good representation of the merchants who are actively identified with the work of the association. The fact, however, was brought out that a good many merchants, nominally members of the organization, have failed to keep in active relations with it. There were, however, present at the meeting a number of new members, some of whom entered with notable interest and enthusiasm into its work.



A. H. KAUFMAN.

A letter was read from William W. Supplee, president of the Supplee Hardware Company, Philadelphia, in which he expressed his regret at being unable to attend the meeting, and his interest in retail Hardware Association work in general and especially that of the Pennsylvania Association.

### Committees.

At the first session of the convention the chair announced the following committees:

PLACE OF MEETING: E. C. Goodwin, Germantown; D. E. Hibner, Du Bois; C. C. Dickson, New Castle.

PRESS: R. R. Williams, New York; George R. Thompson, Mt. Jewett, Pa.; L. W. Burry.

AUDITING: Wm. Mendenhall, Montoursville; Henry Seltz, Galeton; J. R. McDowell, Pitcairn.

RESOLUTIONS: S. S. Bryan, Titusville; D. A. Gill, Meadville; A. W. Lieb, Williamsport.

### Association Finances.

The report submitted by J. E. Digby, treasurer, was gratifying as showing that the association is in sound financial condition, having a substantial balance on hand after paying nearly \$1000 covering the expenses of the association during the year. There remains due from the members also a considerable amount of back dues, upon a good part of which it is hoped it may be feasible to realize. In accordance with the by-laws of the association, the offices of secretary and treasurer are held by the same person, and W. P. Lewis was accordingly elected treasurer to succeed Mr. Digby.

### Parcel Post.

The subject of parcel post was prominently discussed. The principal argument in regard to it was made by M. L. Corey, secretary of the National Retail Hardware Association, whose presence at the association contributed very much to its success. Mr. Corey brought out clearly and forcibly the objections to the measures before Congress in regard to parcel post, as well as the arguments which bear against the project on general principles. The debate was participated in by several of the members, and the judgment of the association in regard to the matter was expressed in a strong resolution in opposition to the establishment of a parcel post.

### Insurance.

The matter of mutual fire insurance received a good deal of attention at the convention, and some of the members who had not previously had an opportunity to become familiar with the lines on which the National and State Hardware Insurance companies are conducted were given an opportunity to become familiar with their methods and usefulness through the clear-cut and comprehensive explanations which were given by W. P. Lewis, who has lately assumed the secretaryship of the National Insurance Company and also of the Hardware Mutual Fire Insurance Association of Pennsylvania. The manner in which the insurance feature may be made a factor in promoting the membership of the association was clearly brought out, and it is hoped that Mr. Lewis, having been chosen secretary of the association, will be in a position from his connection with the insurance company to add largely to the membership of the association.

### Question Box.

While there were few formal addresses and no papers in discussion of general trade topics the amount of business before the association left little time for the Question Box, which in the meetings of so many associations is found so profitable in eliciting useful information and suggestions from the members. The hour, however, devoted to this part of the programme under the trained and stimulating direction of Secretary Corey was productive of valuable suggestions and interesting discussions. The Question Box being opened in executive session left the members free to express themselves without reserve. There was thus secured, for example, a frank expression in regard to the percentage of profit at which va-

rious lines are sold, the general trend of which was to emphasize the importance of broadening in some way the exceedingly narrow margin at which some staple articles especially are handled.

A show of hands in regard to the members who make use of 5 and 10 cent counters brought out the fact that a goodly proportion of the members have these as a regular or special feature of their stores, and there was substantial unanimity in the opinion that this practice is advantageous, not so much on account of the profit made on such goods as because the people, and especially the ladies, are thus attracted to the store.

There was some discussion in regard to the lien laws, which appear to be in Pennsylvania in a very unsatisfactory shape, making the placing of a legitimate lien a complicated and difficult matter, and on the whole operating against the best interests of responsible parties.

The sale of goods to consumers by manufacturers, but more especially by certain jobbing houses, is carried to such an extent that it is evident that the merchants of Pennsylvania have in this matter real grievances which should be corrected. The manner in which this can be done was touched upon in the discussion.

#### Addresses.

Most of the attention of the association was given to the business of the organization, and the discussions which occupied the principal part of the session came up in connection with association matters. A forcible address abounding in practical suggestions was, however, made by H. J. Fueller of the Abram Cox Stove Company, who spoke on "The Master Sheet Metal Worker as a Business Man," imparting much valuable information and giving many definite suggestions which were much appreciated. R. R. Williams of *The Iron Age* referred to the work of associations in other States, and the opportunity presented to the Pennsylvania Association in view of the position of the State and the ability and number of its Hardware merchants. He also called attention to some practical points in connection with the work of the association, and means which might advantageously be adopted in increasing its membership and its usefulness. One of the principal addresses was made by M. L. Corey, the national secretary, on the latest phases of the parcel post agitation, but he referred also to a number of other matters connected with the association movement, his familiarity with this movement enabling him to answer readily a number of questions which were asked him in regard to it. Mr. Lewis' admirable address on insurance and his work in furthering the interests of the companies he represents is given in full on another page.

#### Election of Officers.

The following gentlemen were elected by a unanimous vote to their respective offices:

PRESIDENT, J. F. Howe, Freedom.  
VICE-PRESIDENT, D. E. Hibner, Du Bois.  
SECRETARY AND TREASURER, W. P. Lewis, Huntingdon.  
EXECUTIVE COMMITTEE: Geo. L. Moore, Brownsville;  
J. E. Digby, McKees Rocks; Geo. V. Thompson, Mt. Jewett; S. S. Bryan, Titusville.

The association is certainly to be congratulated on this board of officers. Mr. Howe, the new president, is recognized as an able and successful business man of admirable executive ability, who will doubtless be able to give a most efficient administration. Mr. Hibner, a new member of the association, made an exceedingly favorable impression on the convention on account of his interest in the work of the organization, his ability and breadth of view and his forcible and attractive personality. Secretary-Treasurer Lewis was known to many by reputation and made a host of friends for himself and the special work in which he is engaged, encouraging the expectation of a successful discharge of his duties as an official of the association. That three of the four members of the Executive Committee, Messrs. Moore, Digby and Thompson, were at this meeting re-elected is a tribute to their efficiency, while the board is unquestionably strengthened by the accession of S. S. Bryan of Titusville, one of the prominent merchants of the association and a business man of wide connections and

thoroughly in sympathy with the retail Hardware association movement.

#### Delegates to National Association.

The following gentlemen were elected to represent the Pennsylvania Association at the coming St. Louis meeting of the National Association: A. H. Kaufman, Lock Haven; J. F. Howe, Freedom; W. P. Lewis, Huntingdon; J. E. Digby, McKees Rocks. It will be seen that this delegation admirably represents the association, as the delegates are the retiring and the newly elected presidents and secretaries.

#### The Secretaryship.

J. E. Digby, who, from the first has been the secretary of the Pennsylvania Association, declined a re-election on account of the pressure of other duties and the recognition of the fact that it would be desirable to have some one occupying this responsible and laborious position who had more time to devote to its duties. The appreciation by the association of Mr. Digby's interest in the organization and their high regard for him was appropriately expressed in a special resolution of thanks. In order that the association might be able to make use to the best advantage of the insurance feature it was evidently desirable that the secretary of the insurance company should also be secretary of the association, thus uniting the two secretaryships in one person. On this account as well as for other reasons it was obviously a wise course to elect W. P. Lewis as association secretary, and this was done after a full discussion of the matter by a unanimous vote. Mr. Lewis is recognized as possessing peculiar qualifications for this position, having been prominently connected with association work from the beginning of the movement. Besides having served as president of the Indiana State Association he is also an ex-president of the National Association, and is thus familiar with all phases of the movement. As a merchant of experience and ability with an attractive personality he is especially qualified for the duties which he has assumed. It is expected that he will be able to visit the principal places in the State, and thus personally advance the interests of the association and of the insurance company.



J. E. DIGBY.

#### Dues \$4 a Year.

Important action was taken by the convention in making the annual dues \$4 instead of \$6, as heretofore. This was done because the lower sum was deemed sufficient to meet the financial requirements of the association, especially with a materially larger membership.

#### Place of Meeting.

The Committee on Place of Meeting, after a careful consideration of the claims of the different cities and different sections of the State, recommended Philadelphia for the 1909 convention. This recommendation was very cordially seconded by J. H. Bonbright of the Supplee Hardware Company, who dwelt upon the advantages of that city as a place of meeting for Hardware interests, and promised on behalf of the trade that a very hearty welcome would be extended to the association. While the precise date of the meeting was left to be determined by the Executive Committee, it was the sense of the convention that February or early in March would be the most suitable and convenient time.

#### Exhibits.

The exhibit feature received a good amount of attention at the convention. The number of exhibits were



not large, but the members found it advantageous to devote some time to the inspection of the lines of goods thus brought to their attention. The fact that the exhibit hall was open at the same time as the sessions of the association was found to interfere somewhat with the attendance of the members, some of whom found it difficult to leave promptly to attend the sessions of the convention because of their interest in the goods displayed. The suggestion was made that at future conventions it would be desirable to follow the practice of other States where the exhibit feature is made prominent, and have the exhibit hall closed during the business sessions of the association. In connection with the exhibits a good many souvenirs were given out.

### The Banquet.

More than 100 persons sat down to the banquet on Thursday evening, and it proved to be a most interesting and enjoyable occasion. The Rev. Mr. Beatty of Franklin, Pa., made a very efficient toastmaster. Among the speakers were A. H. Kaufman, retiring president; J. F. Howe, the newly elected president; J. S. Bonbright, Philadelphia; W. P. Lewis, Huntingdon; C. S. Wettach, Pittsburgh; F. C. Goodwin, Philadelphia, and F. L. Spiller, Pittsburgh.

### Resolutions.

Among the resolutions adopted was one in which the association put itself on record as opposed to the Burnham bill, S. 5122, first, because it would not have the effect expected; second, because it fixes charges for a service now practically free, and third, because it would unload the present post office deficit on the farmer or the merchant or both. Opposition to the Keene bill, S. 5115, was also expressed because it would reduce the post office revenue on merchandise, on which there is already a deficit. A separate resolution was also adopted protesting against the installation of a domestic parcel post, and declaring in favor of 1-cent postage.

### Visit to the Lovell Wringer Plant.

On Friday morning a party comprising about 50 of the merchants in attendance at the meeting, several of them accompanied by their wives, left Cambridge Springs in a special car, provided by the Lovell Mfg. Company, Erie, arriving in that city a little before noon. The tourists were taken directly to the Reed House, where they were entertained by the company at luncheon. Subsequently they visited the extensive plant, where the party was divided into groups of six or eight persons and shown through the different departments by the company's officers. The tour of inspection occupied from 2 to 3 hr. and was very much enjoyed.

### The Secretary's Report.

Secretary Digby reported a total membership of 304, including 21 new members, mostly from the Western part of the State, who united with the association during the year. Six members withdrew from business, making a net gain of 15 during the year, and 49 salesmen are on the honorary list. Reference was made to the work of the secretary, and some of the difficulties encountered by the Executive Committee in arranging for the meeting just held, and an appeal was made to the membership to put forth more individual effort for the advancement of the association's interests. Mr. Digby recommended that use be made in connection with future conventions of the exhibit feature as a means of assisting the association, not only financially, but also in creating a greater interest in its annual meetings. He recommended that a committee should be appointed for this purpose. In view of the changes made in the by-laws a revised edition of the constitution and by-laws will be issued in the near future.

### Exhibitors.

Following is a list of exhibitors at the convention:

ALUMINUM COOKING UTENSIL COMPANY, Pittsburgh, Pa.: A. E. Bergoline.  
AMERICAN STEEL & WIRE COMPANY, Chicago: Woven Fencing, S. N. Lippincott and J. D. Sankey. Souvenir, vest pocket memorandum book.  
E. C. ATKINS & Co., Indianapolis, Ind.: Saws. D. R. Branson and E. R. Kilbourn. Souvenirs, silver Tea Spoon and pocket comb.  
BERGER MFG. COMPANY, Canton, Ohio: Sheet Metal Work.  
CANTON ART METAL COMPANY, Canton, Ohio: Sheet Metal Work. W. H. Gardner.

CARBORUNDUM COMPANY, Niagara Falls, N. Y.: H. L. Davis, L. M. Haskins and F. L. Spiller. Souvenir, Pocket Hone.  
ABRAM COX STOVE COMPANY, Philadelphia, Pa.: Harvey J. Fueller.  
DOVER MFG. COMPANY, Canal Dover, Ohio: Asbestos Sad Irons. J. W. Muckley and D. L. Keyser.  
W. W. LAWRENCE & Co., Pittsburgh, Pa.: Paints.  
LOGAN-GREGG HARDWARE COMPANY, Pittsburgh, Pa.: Souvenir, Glass Paper Weight.  
JOHN LUCAS & Co., Philadelphia, Pa.: Paints. A. H. Jennings.  
MCINTOSH HARDWARE CORPORATION, Cleveland, Ohio: E. H. Pugh. Souvenir, sprig of heather.  
MAJESTIC MFG. COMPANY, St. Louis, Mo.: Stoves. C. R. Tenedick. Souvenir, pocket pieces and cigars.  
MATHER GAME COMPANY, Canton, Ohio: Mather's Parlor Baseball Game. J. S. Mather.  
PATTON PAINT COMPANY, Milwaukee, Wis.: Paints and Brushes.  
PIKE MFG. COMPANY, Pike, N. H.: Oil Stones, Whet Stones, Pyko Grinder, &c. John A. Winters and H. W. Buser.  
Souvenirs: Combination Paper Weight and Blotter, India Oil Stone, pocket size, and Knife Sharpener and Blotter.  
PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Wire Fencing. P. C. Bigelow and F. G. Knight. Souvenirs: Keystone Key Guard and Bronzed Ash Tray and Vest Pocket Dictionary.  
REMINGTON ARMS COMPANY, Illion, N. Y. H. E. Young and Henry H. Stevens.  
SIMONDS MFG. COMPANY AND SIMONDS FILE COMPANY, Fitchburg, Mass.: Saws and Files. George T. Curtis, F. L. Mercler and H. A. Schulte.  
SUPPLIER HARDWARE COMPANY, Philadelphia, Pa.: Worth Butcher Knives and Lawn Mowers. J. H. Bonbright and John W. Weibley.  
UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.: Ammunition. Henry H. Stevens and H. E. Young.

### W. P. LEWIS' ADDRESS.

Following was the address of W. P. Lewis, who discussed the subject of mutual fire insurance and its relation to the growth and development of the association:

It gives me much pleasure to count Pennsylvania my adopted State, and to meet for the first time the members of the Hardware Association. If I could square to the measure of the stature of the men who have left their impress on this mighty commonwealth I would be great indeed, but to dwell where they have dwelt, to enjoy the influences of institutions they have founded and to breathe this atmosphere of progress and opportunity, is no mean privilege. I am proud of my native State, a gem of the Middle West. In every channel of human activity Indiana has developed men of commanding potentiality. In literature and culture it has been said that her chief city is the Athens of America. In commercial enterprise, in the high art of government, education, philanthropy and modern civilization, she is honored everywhere. In the field of activity which is nearest the interest of those assembled here to-day, she has been a pioneer, a never faltering champion, an undaunted defender of the principle of the fair deal for the Hardware merchant. She has developed a State Hardware Association of over 1000 members; their annual convention is a magnificent event. She has presented to the National Retail Hardware Association two presidents, she has given to the national association their first and only secretary. I have for years known and observed his capacity for work, his energy, earnestness, ability to grow and to grasp those larger questions which are ever present in the onward sweep of this great movement. Mr. Corey is here to-day; no man can meet him without feeling there is a reason for the marvelous growth of our National Retail Hardware Association.

### A Mighty State.

But, notwithstanding the prowess of my native State, notwithstanding her exhibit of energy, interest, brains and success; notwithstanding her national influence and power, I am constrained to believe there are far greater possibilities in the State of Pennsylvania than elsewhere in the union. This is a mighty empire, stretching from the banks of an inland river to the shore of a mighty sea; on her western border she has created the greatest freight producing city in the world; on her eastern boundary there lies a city whose greatness and fame is fixed on the page of history for all time; from the lake on the north to the bay on the south, on her mountain side, in her fertile valleys, on her highways and her rivers, there dwell in cities and towns and hamlets a citizenship marked for its thrift, energy, intelligence, resourcefulness and wealth, the richest State on this continent, save one, founded by the illustrious Penn, guided by the brilliant Franklin, defended by Anthony Wayne and developed in the present day by the greatest captains of industry the world has ever known. This, men of Pennsylvania, is the land in which you dwell; here is present a reservoir of power, which, if utilized and directed in proper channels, can be felt across the western plains. Are we measuring up to present opportunity? Are we?

### We Must Grow or Die.

A law, as fixed in the economy of the universe as the law of gravity, is the law of growth. We must grow or die; we must increase or decline; either we exhibit signs of life or we exhibit signs of decay. I am here to-day in the interest of the Pennsylvania Hardware Mutual Fire Association. This insurance company was organized by the founders of this association, operates under

a charter issued by this great State, proceeds on a plan of mutual insurance, the most scientific that can be formulated in this day and age; has been in existence nearly six years; has paid liberal dividends during that time, and yet of the five large companies in the field we have the smallest volume of insurance in force; this should not be. I will never rest, so long as the affairs of the company are confided to my care, till the Pennsylvania Company shall take equal rank with the foremost Hardware mutuals in the land.

Let us study briefly recent history—perchance we may gather a lesson or two.

Are these other companies in more favored States?

No; they are in States not nearly so well favored.

Are they better managed?

No; they are not.

Is there any point of superiority in their methods?

There is not.

Are they older than the Pennsylvania Company?

No. All of them are younger than the Pennsylvania Company, with one exception.

#### What Then Is the Reason

for their greater growth? There is to my mind but one answer. Every one of those Western companies is organized in States which have a powerful and highly developed State Hardware Association; the Western temper of mind is broad, breezy and loyal to the core to their institution; the Hardware associations throw all their powerful influence to their respective insurance companies, and the insurance companies in turn make the Hardware associations grow. As far as I know there is no schism in any of the Western associations—they pull as one man for their own.

#### Pennsylvania to the Front.

I am here for the purpose of declaring to you that the Pennsylvania Insurance Company will do all in her power to increase the prestige of the Pennsylvania Hardware Association, for it must be clear to any man that a declining association means a declining insurance company, unless the insurance company breaks away from association relationship. This is an anomaly that must not be thought of. Men of the Pennsylvania Hardware Association, if there is one thought that should be burned in deeper than the surface, it is this, "Pennsylvania to the front," both in association work and insurance company progress. I will not say our honor is at stake, but certainly our dignity is.

The spirit of the Quaker and the spirit of the Dutch must hear this call, and hearing, with those dauntless souls, means action.

There's a fount about to stream,  
There's a light about to gleam,  
There's a warmth about to glow,  
There's a flower about to blow,  
There's a midnight darkness changing into gray,  
Men of thought and men of action—Clear the way!

#### PRESIDENT KAUFMAN'S ADDRESS.

President Kaufman's annual address was in part as follows:

The purpose of this association is, first, the organization of the retail Hardware dealers of Pennsylvania into a body, wherein each member may have equal rights and privileges, and share in its mutual benefits. The slogan for the year should be: The association for every retail Hardware dealer in Pennsylvania and every retail Hardware dealer in Pennsylvania in the association.

The need of a line of distinction is apparent. Not all venders of Hardware are legitimate dealers. The employing of dishonorable means and practices in disposing of goods should be discountenanced. Only dealers doing a legitimate and honorable business should be eligible to membership in the association. I also believe that a line of distinction should be drawn between the retailer and jobber of Hardware, as we have distinct organizations for both. If, however, a man is eligible to both associations, by virtue of being in both wholesale and retail business, then he should be amenable to both associations for dishonorable and illegitimate practices. Neither fear nor favor should be shown in dealing with such parties.

Only such legislation as will mutually benefit all, or at least a major part of the membership, should be enacted. All efforts now being made, or that may hereafter be made, for the protection of the legitimate merchant, such as protesting against the establishing of parcel post delivery, &c., should have the prompt and emphatic endorsement of this association.

#### Perpetuity of the Association.

An organization of this character cannot continue without official activity. It is no small matter for a business man to assume an official relationship in it, for it demands a great deal of time and attention. The larger it grows the more time and attention are required. A

great amount of credit is due our officers both past and present for what has been accomplished, but I am satisfied the demand of the hour is for officials who are in a position to give more time to the work of the association than has been given it in the past.

Association does not mean simply convention. It means continuous effort. One man could be kept busy during the whole year soliciting membership, creating association sentiment and promoting the insurance feature of the association. Let us select a man from among our membership who can and will devote time to this work; then clothe him with official power, and give him sufficient remuneration for his labor. I am satisfied this would be a good investment. Success, however, does not depend upon the officers alone. Every member should strive to increase the membership of the association, for the stronger we are numerically, the greater our influence.

Now as to this convention. After a skirmish of several months, with a view to locating the seat of this convention in one of the many undeveloped sections of the State, we were compelled to turn our attention to the place selected at the time of the last session, Cambridge Springs. Sunbury, Wilkes-Barre, Reading, Scranton, Altoona and Williamsport were visited by members of the Executive Committee, but in none of these places were we able to find a person willing to assume the responsibility of entertaining same. We have come to a time when something must be done.

#### Interest Must Be Aroused in Association Work

in the above mentioned, and many other cities and towns in Pennsylvania. Is not the association to blame for the lack of interest? What has it ever accomplished for its membership outside of its insurance feature, and the pleasure of attending its annual gatherings? The very best way to arouse interest is to plan, and carry to a successful completion, some definite work. Our convention should be of such great value to a city, and interest to its Hardware trade, that it would not be considered a burden and have to go begging for a place of meeting, but be counted a privilege by any city, and a pleasure by any Hardware dealers to entertain it. These remarks are not to be construed as objecting to Cambridge Springs as a place of meeting, for a more desirable spot and a place with better facilities for holding a convention could not be found. There is no reason why we should not have a most pleasant and successful convention here.

#### Logical Meeting Place.

It does seem to me, however, that the most logical place for the annual meeting would be the great metropolis of the State, Philadelphia, the greatest manufacturing city of the world, and the home of the jobbers of the State. I am also inclined to believe that the association would be benefited and the members appreciate more fully the pleasure and profit of attending the convention, if it were held some time during the summer months. I would ask that this matter as to time and place of meeting be given due consideration at this meeting.

Your very presence here manifests your interest in and expresses your earnestness for the success of this convention. As I look into your faces I am impressed with the ability displayed in the general make-up of this assembly, and, by the evident unanimity of purpose, am satisfied that you are determined to take advanced steps in association work and push the same to the very borders of this Commonwealth.

This is not a convention of officials, nor of a few, but it is your convention; you are equally responsible for the success or failure of this meeting. The privilege of being active is implied in your membership. I ask you to exercise that privilege and make this one of the very best conventions ever held by the Pennsylvania Retail Hardware Association. Let due consideration and mature judgment mark every action of this meeting, so that upon adjournment we can feel assured that our work has been well done.

F. E. KOHLER & Co., Canton, Ohio, tendered a dinner to their superintendents, foremen and officers on the 21st ult. The occasion was a very pleasant and profitable one. Brief addresses were made by several of those present, including the members of the firm, Messrs. Kohler and Harter. It was pointed out by Mr. Harter that a very friendly feeling existed between the employees and the firm, and that no labor troubles of any kind had taken place during the period of 29 years covered by the concern. Mr. Kohler likened a manufacturing establishment to an army, the workmen being the rank and file, the foremen the division commanders, who were in turn commanded by a leader or general. As long as the different divisions co-operated together and worked in unity victory was practically certain, but if one or more divisions tried to operate independently or jealousy existed among them it was pretty sure to result in disaster.



## Western Massachusetts Hardware Association.

THE annual banquet of the Western Massachusetts Hardware Association was held at the Cooley Hotel, Springfield, March 4. The following officers were elected: President, F. E. Stacy, Springfield; vice-president, A. J. Osborne, Holyoke; secretary-treasurer, W. A. Pearson, Holyoke. The association had as its guests the officers of the Connecticut and New England Retail Hardware associations and several members of the Hartford local association. As a feature of the occasion there was a discussion of the parcel post question led by James L. Cowles, New York, secretary of the Postal Progress League, who favored the idea. Mr. Cowles was opposed in the discussion by F. Alexander Chandler, president, and C. L. Underhill, secretary, of the New England Association; J. De F. Phelps, secretary; I. C. Treat, former president, and F. A. Farrar, financial secretary, of the Connecticut Association, as well as by other speakers, including G. I. Clapp, secretary of the Hartford local association. Mr. Chandler also urged the merchants present to affiliate with the organization which he represented as well as with the National Retail Hardware Association.

## Corbin Cabinet Lock Company's No. 22 Catalogue.

THE CORBIN CABINET LOCK COMPANY, New Britain, Conn., and 21 Warren street, New York, has just issued cloth bound descriptive catalogue No. 22, of 26 pages, each 10 x 7½ in. Cabinet Locks are shown by half size illustrations in great variety, from the inexpensive to combination keyless styles. Knobs, Escutcheons and Striking Plates are also reproduced, and in the back of the book there is a comparative list of Corbin, Eagle and Yale Cabinet Locks. This book is confined to illustrating and describing the company's Cabinet Locks and Accessories only. In the front is a description of finishes, price-list of Cabinet Locks and extra Keys, Escutcheons and Strikes in numerical order, together with a list of Locks which can be made with more than 12 changes of Keys and those which can be made all different with Master Key and price for making master keyed. There are no list prices in the body of the book, which can be shown freely.

## Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM VALLEY HARDWARE COMPANY, Harrisonburg, Va., which wishes catalogues, price-lists, &c., of Bathroom Supplies and Fixtures, Bathtubs, &c.; also Electric Light Fixtures.

FROM BISOM & NELSON, successors to the Hardware, Stove, Tinware and Implement business of S. R. Nelson, Brayton, Iowa.

FROM FREDERIKA HARDWARE COMPANY, Frederika, Iowa, which was burned out recently, but will shortly reopen in a new building.

FROM CLARKSVILLE HARDWARE COMPANY, Clarksville, Tenn., whose stock of Hardware, Stoves, Implements, Paints, &c., was damaged by water in a recent fire.

FROM BEACHMAN HARDWARE COMPANY, Spartanburg, S. C., handling a general line of Hardware, Crockery, Stoves and House Furnishings. This business has recently been started by H. O. Beachman, late manager of the Spartan Hardware Company.

FROM EDWARD G. SPITZ, 241 West Fifty-second street, New York, who desires catalogues and other printed matter issued by Hardware manufacturers, especially relative to Mechanics' Tools, Locks, Hinges, &c. Mr. Spitz is looking for manufacturing connections in these lines, with a view to taking up their representation to the trade in Belgium, Germany and France.

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**SPECIALIZATION IN HARDWARE BUSINESS.**

BY HARVEY J. FUELLER, SECRETARY OF ABRAM COX STOVE COMPANY, PHILADELPHIA.



HARVEY J. FUELLER

My early business training was acquired "on the road," in the stern school of practical salesmanship. Though my direct business experience has been confined as a manufacturer to the stove, range and furnace department of the hardware trade, yet I have spent no inconsiderable part of my life in retail hardware stores and in contact with hardware merchants. My somewhat extensive observation of the conditions which generally prevail in your business is my excuse for venturing to direct your attention to certain views which I entertain regarding methods and policies that I believe could be adopted by retail hardware merchants for increasing their profits and curtailing the evils of unwise competition.

**Impossible to Eliminate Competition.**

I take it for granted that you are all in business with the purpose of making the maximum returns on your capital invested, and that no topic is of more practical interest to you than a discussion of methods for increasing your profits. There is no danger that your profits will be excessive. There is, I believe, among our retail hardware merchants no individual whose enormous wealth is considered as constituting a menace to society or a proof of oppressive business policies. The laws of competition are as inexorable as the laws of nature, and they prevent any man who is engaged in a business which is not monopolistic from making undue profits or from oppressing the consuming public.

By a careful study of conditions and by wise co-operation among yourselves you may eliminate certain harmful and destructive features of competition, but you will never be able to eliminate competition itself. Your organization can be made a valuable and effective agency for promoting your interests, but if any of you indulge the hope that it will ever be able to bring about a condition in which competition will be absent, you are merely deluding yourselves. The different degrees of success attained by different hardware merchants under practically similar conditions and opportunities make it obvious that the methods of some are better adapted than the methods of others to promote success. A study and an analysis of methods of conducting the business are therefore of the highest importance to retail hardware merchants.

**Unduly High Selling Prices.**

It is plain that in order to make money you must sell your goods at an increase over the amount you pay for them, plus your cost or expense of conducting business. But do not jump to the conclusion that the higher your selling prices are the greater your profits will be. Unduly high selling prices are ultimately almost as destructive of profit as unduly low selling prices. One of the most difficult tasks which confronts the hardware merchant is that of fixing proper selling prices on the different classes of goods which he handles. On certain goods it seems to him that he must ignore his general percentage of expense in fixing the selling price or be outside of the market entirely. In my opinion it is an error for a merchant to compute his profits on the volume of his sales. They should be computed upon the investment in the business.

The retail fruit dealer, who, on the average, turns his entire capital weekly, will make a far greater profit by selling his goods for 10 per cent. more than he pays for them than the jeweler, who turns his capital on the average once each year, will make by selling his goods at an advance of 100 per cent. over his purchase price. Say that in a given hardware business the mer-

chant finds that his total expenses, including interest on capital, his own salary and those of other executives, rent, insurance, wages, office force, shipping, taxes, light, heat, advertising, bad accounts and all other costs of conducting business, amount to 20 per cent. of the purchase price of all goods which he has sold during the year; yet it is apparent that it has cost him less than 20 per cent. to sell some of the quick moving, cheaply handled goods, and it has cost him much more than 20 per cent. to sell some of the other goods, which he must carry a long time and on which his selling expenses are heavier.

Some merchants consider that the only difference to them in profit between a class of goods on which they turn their capital every 60 days and another class on which they can turn their capital annually is 10 months' interest at the current rate; but this is a great mistake, as in one case they make six profits in one year on a given investment and in the other case they make but one profit in one year on a given investment. Of course the carrying of book accounts is an element in the turning of capital which must always be taken into account, and if hardware merchants generally realized the great importance of prompt collections as a factor for producing profit, they would devote more attention to this feature of the business.

**Profits and Ease of Selling Goods.**

The hardware merchant, in order to understand what he is doing, to know what classes of goods it will pay him to push and to maintain a price scheme which will bring the best results, should analyze his business thoroughly and should classify the goods which he handles into divisions, showing separately, in groups, those in which he turns his capital respectively in 60 days, in 4 months, in 6 months, in 8 months, in 10 months, in 1 year, in 18 months, in 2 years, &c.

An additional account should be opened for each specialty to which the merchant devotes particular attention and on which he aims to secure more than the ordinary rate of profit, and, of course, such specialties should not be grouped with other goods. Such specialties might be ranges, heating stoves, different branches of the cutlery business, paints, wall paper, a line of high grade wooden ware, and firearms and ammunition. He can then, using his own good judgment, and justly estimating other factors known to him, apportion to each class the percentage of expense which it should rightly bear.

**Accounts for Separate Groups of Merchandise.**

In apportioning this expense the merchant should be very certain to have the total apportionment equal his entire expense as based upon his previous year's experience. After adding the proper percentage for expense to each article or kind of merchandise he will have the real cost thereof. He can then open an account with each separate group of merchandise, charging it with all of its costs and crediting it with its sales. He will then know at the close of the year just where each class of goods stands as a profit earner.

There is no mistake more common than the failure to include the full expense of doing business in calculating costs and selling prices. Unless conditions are radically changed, there are some classes of goods which it is practically obligatory for retail hardware merchants to handle on which it will never be possible for them to make a reasonable profit. As an offset to this unprofitable business they should develop a trade on specialties upon which they can secure a profit above the ordinary rate.

**Advantage in Handling Ranges.**

There are many specialties in different lines of manufacture which the shrewd hardware merchant can push and advertise and promote until he has a valuable franchise in the continuous profit accruing to him from their sale. In many cases he can control the sale of special goods of certain kinds, and can then very profitably work up a reputation for them which will permeate the entire community.

For example, most hardware merchants handle ranges, and the profit thereon, considering the cost of selling and handling them, is usually very moderate.



Many hardware merchants try to increase their profits in the range business by scouring the market for the lowest priced ranges they can find, thinking thus to be able to undersell their competitors and build up a large business. But what they can do in purchasing cheap and nasty ranges can be duplicated by their competitors, and they can never build up a good reputation nor establish a profitable trade by handling such goods.

#### **Reputation for Handling High Grade Specialties.**

On the other hand, it has been frequently demonstrated that if the merchant will select a strictly first-class, high grade range, with special features of merit, and push it as a specialty, he can build up a permanent, profitable trade on it, which cannot be taken away from him by means of any price concessions which his competitors may make on other ranges. And what can be done on ranges can be done on many other specialties on which it is possible for the skillful hardware merchant to develop and maintain a profitable and, practically, an exclusive business.

#### **Hardware Merchants and Furnace Heating.**

As many hardware merchants are engaged in the heating business, I desire to direct attention to warm air furnace heating and ventilation as a most striking example of specialization, through which, if properly conducted, they could build up a profitable and highly satisfactory trade. Cheap competitive bidding has performed its sinister work in the furnace business, until furnaces of utterly inadequate capacity are merely thrown into cellars or basements and installed without regard to the proper proportioning of the piping system or for any other elements necessary to right results. As a result of these poor methods of installation and of the use of furnaces of too small capacity, warm air furnace heating to-day is seldom given the slightest consideration for first-class or even for medium priced residences. Yet with a good furnace of the proper size, with the piping correctly proportioned, and with first-class installation in other respects, there is no other plan of heating so practical, so successful or so satisfactory as warm air furnace heating.

#### **Warm Air Heating Superior.**

This is an age of sanitation, and from the standpoint of healthfulness warm air furnace heating is immeasurably superior to direct water or steam heating. When furnace heating was discredited by the evil demon of cheapness, which meant deficient capacity and defective workmanship, the people who built good houses turned eagerly to steam and water, believing that these were sure and sound methods of heating. And thus the heating of good residences was taken away from the furnace merchant by a system that cost much more than good furnace heating. This proves that it was really the low price of furnace heating, necessarily accompanied by inferior quality, that drove it from the market to such a marked extent, and that this better method of heating would never have been supplanted if a high standard of installation had been maintained. Furnace heating has been discredited because the average furnace dealer mistakenly supposes that he can get work only on the low price of the job. And even those few furnace dealers who pride themselves on getting what they call good prices go only half way and do not attempt to do strictly first-class, highest grade work, through which alone can furnace heating be brought into the favor and standing to which its merits entitle it.

There is an enormous amount of unsatisfactory steam and hot water heating being done, very largely due to the "skinning" of jobs through cheap competitive methods. The profits in steam and hot water heating are notoriously low. Direct steam or water heating, even at its best, is condemned by every practical and scientific test as being unsanitary and unhealthful. Every authority on ventilation, every competent heating engineer, every physician who has given the question the slightest study, condemns direct steam or water heating as being in violation of nature's laws. There is no division of opinion amongst those who speak with authority on this subject; they agree without a dissenting voice that the only proper way to heat an apartment is by pouring pure

warm air into it. With every argument, practical, scientific and hygienic, in his favor, why should not the hardware merchant take advantage of the heating situation as it exists to-day.

#### **Opportunities in Furnace Business.**

If the members of this organization, regardless of how expert they believe themselves to be, would make a study of the furnace business and would start a determined and systematic crusade in favor of strictly first-class warm air furnace heating, a very large proportion of all first-class residences could unquestionably be captured for this superior method. And while you would be giving your customers far better value for their money than they could possibly receive with any other system of heating, you could legitimately make much larger profits for yourselves than it would be possible to make by installing any other method of heating. For strictly first-class warm air furnace heating and ventilating there is no reason why the house owner should not pay at least as much as the price of the inferior and unsanitary direct steam or water system. The field is not liable soon to be overcrowded, and those who start in to do strictly first-class furnace heating and ventilation are not likely to have much serious competition, for only those who have the insight and the foresight to get out of the beaten path of custom will enter this rich field, and they are not likely to be large enough in number to crop off the pasturage for a long time to come.

#### **Responsibility of the Furnace Manufacturer.**

To some extent furnace manufacturers have been to blame in times past for the defective installation of furnaces, because they failed to furnish the trade with definite, practical rules and directions for installing warm air heating plants, or for determining the capacity of apparatus required to heat a given building. There are now, however, several manufacturers who give attention to the instruction of their customers, in a general way, which will insure for the customer good results in furnace heating; and there is one furnace manufacturing house that furnishes each of its customers with a manual or handbook, which gives clear, positive, definite rules and directions for properly installing a warm air heating and ventilating plant in any residence or in any other building to which the system is adapted.

Those who desire to increase their profits in the heating department of their business are assured, therefore, that they can secure, without money and without price, all of the rules and directions necessary to enable them to do strictly first-class, highest grade warm air furnace heating and ventilating. And so great, so obvious, are the advantages of strictly first-class warm air furnace heating over the direct steam or water method that the dealer who once gets a start with the better system will soon have an extensive and lucrative business in that line.

### **The Wheeling Corrugating Company.**

THE WHEELING CORRUGATING COMPANY, manufacturer of sheet metal and sheet metal products, whose headquarters are at Wheeling, W. Va., and New York office and warehouse at 47-51 Cliff street, has issued its general catalogue No. 265 for 1908. In addition to giving complete information concerning sheets and valuable tables, rules of measurement, directions for applying roofing and siding, &c., the catalogue covers the extensive line of sheet metal products made by the company, including Conductor Pipe and Gutter, Eaves Trough Hangers, Elbows and Shoes, Stove Pipe Elbows and Collars, Dripping Pans, and a large line of Galvanized Ware, including Pails, Tubs, Garbage Cans, Ash Cans, Oil Cans, Coal Hods, Dry Measures, &c. Special attention is given to Metal Ceilings and Metal Shingles, with directions for applying both.

E. J. H. North, Yates City, Ill., has purchased the Hardware business of Chamberlain & Co. and will continue it at the old stand, carrying a line of Hardware, Pumps, Spouting and Tin Roofing.

## Correspondence.

### Cash Discounts and Cash Rebates.

*To the Editor:* The national association of Hardware manufacturers has of late worked itself up to almost a frenzy regarding the abuse of cash discounts, but before it calls the jobbers again would it not be well to do a little missionary work among its own members, not only regarding their taking 15 and 20 days, but in some instances insisting on 30 days on 10 days' discount goods. Does it not look absurd for the pot to call the kettle black?

Many lines of goods are now sold "restricted," the manufacturer fixing the jobbers' selling price, and to protect the price and prevent the jobbers from cutting the manufacturer holds back the jobber's profit in what is known as rebates, payable at the expiration of fixed periods, some three months, some six months, and so on.

The three months' period is most popular with most manufacturers, but generally the manufacturer takes three months more to figure up his accounts and settle with the jobber. Goods shipped in January, February and March are not rebated until July 1; then the jobber gets his profit of 10, 15 or 20 per cent., as the case may be.

Thus the manufacturer has all of the jobber's profit for three months, and part of it six months, without interest. This rebate should be paid promptly on the day it is due, but manufacturers have been known to take 30 days longer to figure the rebate (?) when three months has already been taken, and then send credit memorandums for the amount of cash due the jobber.

This is about the limit, for if the jobber needs no more goods of this particular make for three or four months, and if seasonable goods, possibly six months, he may be out of the use of his money a year.

I have known jobbers to accept these credit memorandums and size the manufacturer up accordingly. If the jobber owes the manufacturer, and especially is slow pay, then the credit memorandums are all right, but when no indebtedness exists it is mighty narrow business, especially if the same manufacturer takes overtime to discount his bills. It is especially one sided for such a manufacturer to belittle the jobbers who run over the 10 days three or four days, when he is doing very much worse.

Let the manufacturers' association brace up some of its members before denouncing the methods of the jobbers.

Manufacturers who do not discount their bills and do send credit memorandums for rebates make themselves appear small potatoes when they decry the jobber who does not discount on time.

Overtime should not be taken on any bills, and this applies with equal force to manufacturer as well as jobber.

AJAX.

### The De Haven-Dawson Co.

THE ALLEN HARDWARE COMPANY, Charlotte, N. C., and the De Haven-Dawson Company, Chester, S. C., have consolidated their interests under the style of the De Haven-Dawson Company, which has been incorporated with a capital of \$200,000, of which \$150,000 is paid in. The new company will have its headquarters at Norfolk, Va., where its largest stock will be carried, while the Chester branch will be continued under practically the same management and policy as heretofore. The business at Charlotte will be discontinued, except for a storehouse stock of some heavy lines, which the company will continue to maintain for the convenience of its trade in that locality. The officers of the De Haven-Dawson Company are: President, Hugh De Haven, who is also president of the De Haven Mfg. Company, Brooklyn, N. Y.; first vice-president, D. E. Allen; second vice-president, L. B. Dawson; secretary and treasurer, G. R. Dawson. Directors: Hugh De Haven, E. A. W. Murray, New York City; D. E. Allen, Charlotte, N. C., and L. B. and G. R. Dawson, Chester, S. C. The business will be under the direct management of D. E. Allen and G. R. Dawson at the Norfolk headquarters and L. B. Dawson at the Chester branch, all of whom are practical Hardwaremen of experience and proved business ability.

This consolidation has been brought about largely through the initiative of the Oliver Bros. Purchasing Company, New York, which has heretofore controlled the stock of the Allen Hardware Company. On account of their position as New York and Pittsburgh purchasing agents for many other Southern jobbing houses, the Messrs. Oliver have, as a matter of policy, resigned as officers and directors, and will not in any way be identified with the interests of the Allen Hardware Company's successor, except as minority holders of some stock which they are taking in part payment for their former interest.

### Memorandum of Seasonable Goods.

THE EMERY-WATERHOUSE COMPANY, Portland, Maine, is furnishing its salesmen with a novel announcement in the form of a memorandum of seasonable goods for which future orders will be solicited. It takes the shape of a stiff folder which may be inclosed in a long letter envelope and mailed unsealed, the salesman's name being printed and the approximate date of his call indicated by a rubber stamp. Special attention is called to Poultry Netting, Wire Screen Cloth, Screens and Screen Doors, Barbed Wire and Lawn Mowers. On the inside pages is a very complete and comprehensive list, with a margin in which wants may be checked. Space is also provided for additional memoranda to be referred to when the salesman calls. Following is the seasonable goods list to which reference is made:

#### SEASONABLE GOODS.

Please check your wants in margin.

Space for additional memoranda will be found on back page.

Loaded Shells. Cartridges.	Copper, Tubular, Clinch
Axes. Axe Handles.	Rivets.
Baskets.	Stake Irons.
Tackle Blocks.	Wire and Cut Nails.
Brooms. Brushes.	Galvanized Nails.
Chimneys. Wicks. Burners.	Tarred Paper and Roofing.
Curry Cards. Curry Combs.	"Congo" Roofing.
Cow Ties. Halter Chains.	Sheathing Papers.
Trace and Stake Chains.	Blanket Pins.
Files. Horse Rasps.	Metal and Stove Polish.
Lumber Leads. Lead Pencils.	Enterprise Molasses Pumps.
Food Choppers. Raisin Seed-	Sweat Pads.
ers.	Framed Saws. Saw Plates.
Sausage Stuffers. Lard Presses.	X Cut Saws and Handles.
Alarm Clocks.	Ice Saws. Ice Hooks.
Manila, Sisal, Cotton Rope.	Ice Tongs.
Cant Dogs and Handles.	Shovels. Scoops.
Ice Creepers. Heel Irons.	Sleds. Skates.
Nest Eggs.	Sleigh and Team Bells.
Wood Faucets.	Harness Snaps.
Wood Choppers' Mauls and	"O. K." Registers.
Wedges.	Oil Heaters.
Glass. Putty. Glaziers' Points.	Soapstones.
Glue. Liquid, Sheet and	Washboards. Wringers.
Ground.	Weather Strip.
Ox Goads.	Sheet Zinc.
Hay Knives.	Builders' Hardware.
Bolt Hooks. Ladder Hooks.	Ogden Door Checks.
Halters. Rope Ties. Sur-	Tinware. Enameled Ware.
cingles.	Rome Nickel Plated Ware.
Horse Clippers.	Rogers' Plated Ware.
Barn Door Hangers. Rail.	Galvanized Pails. Tubs.
Hinges. Butt, Strap and Tee.	Coal Hods. Sieves.
Thumb Latches.	Corn Poppers.
Hasps. Hooks and Eyes.	Stove Boards.
Saw Clamps.	Stove Pipe. Elbows.
Cable Chain. Repair Links.	Dampers. Stove Pipe Rings.
Sad Irons.	Oil Cans.
Saw Sets. Saw Bucks. Saw	Ash Barrels.
Frames.	Stove Shovels.
Lanterns. Globes.	Pokers. Cover Lifters.
Sheet Lead. Lead Pipe.	Carpet Sweepers.
Clothes Lines. Reels.	Game Traps. Chains.
Padlocks.	Log and Board Rules.
Dry Measures.	Carving Sets. Pocket Cutlery.
Thermometers.	Stove Bolts.
Wood and Steel Snow Shovels.	Fireplace Goods.

### Seattle Hardware Company's Catalogue.

THE SEATTLE HARDWARE COMPANY, Seattle, Wash., has just issued a large general catalogue covering its extensive stock of Hardware and allied lines. The book is of the loose leaf variety, containing between 1300 and 1400 pages, with gaps in the numbering, so that new leaves can be inserted without breaking the sequence. It is carefully indexed and fully illustrated, containing much useful information, tables, &c., pertaining to Hardware and kindred lines. The catalogue was prepared, set up, printed and bound in the company's own plant installed for the purpose, and all the pages are left standing in type, so that revisions may be made at short notice. Following are the comprehensive departments into which the book is divided: Tools, Builders' Hardware, Miscellaneous Hardware, House Furnishing Goods, Metals, Pumps, Brass Goods, &c., Ship Chandlery, Cutlery, Sporting Goods and Fishing Tackle.



## OHIO HARDWARE SHOW.

**A**S stated in our last issue, a very large and successful Hardware show was held in connection with the convention of the Ohio Hardware Association at Columbus, February 25-27. The exhibition was held in the largest hall in the city, which was elaborately decorated by the management, following out a uniform design and color scheme, which added much to the beauty and harmony of the general effect. Exhibitors were thus relieved of all the trouble and expense of preparing booths. The success of the affair was largely due to the efficient work of the association's committee in charge, consisting of W. L. Jacobs, Youngstown; W. M. Crumrine, Salem, and J. R. Dickson, Columbus. Following is a full list of the exhibitors and their representatives in charge:

- ACME WASHING MACHINE COMPANY, Columbus, Ohio: Acme Washing Machines. Represented by F. E. Jack and staff.
- ADAMS BROS. COMPANY, Findlay, Ohio: Arras Sulky Breaking Plow. Represented by J. D. Arras and D. Adams.
- ADRIANCE, PLATT & CO., Poughkeepsie, N. Y.: Farm Machinery and Plymouth Hinder Twine. Represented by C. C. La Clare.
- AJAX CONDUCTOR & MFG. COMPANY, Chicago: Ajax System of Lightning Protection. Represented by W. H. McCullough and J. A. Scaryell.
- ALABASTINE COMPANY, Grand Rapids, Mich.: Alabastine sanitary wall coating in a variety of tints. Represented by A. E. Harper and G. H. Kranenburg.
- S. L. ALLEN & CO., Philadelphia: Flexible Flyer Sleds. Represented by Chas. Klepinger.
- ANTHONY FENCE COMPANY, Tecumseh, Mich.: Anthony Fence. Represented by E. E. Bassett and E. S. Dunham.
- AUTOMATIC LEVEL COMPANY, Toledo, Ohio: Concrete and Masons' Levels. Represented by H. C. Bussell.
- BANY & HADLEY MFG. COMPANY, Delphos, Ohio: Bany Washing Machines, Lawn Swings, &c. Represented by B. F. Hadley and G. A. Johnston.
- BERGER MFG. COMPANY, Canton, Ohio: Line of Sheet Metal products. Represented by A. T. Enlow, L. D. Mercer, H. P. Resch, E. Bechel and R. C. Moore.
- W. F. BERRY, Madisonville, Ohio: Abram Cox Stove Company's Princess Novelty Ranges for coal and gas and combination coal and gas warm air Furnace.
- BILLINGS-CHAPIN COMPANY, Cleveland, Ohio: Paints, Varnishes, Dry Colors, &c., with effective motor display. Represented by W. W. Rankin and M. L. Strausbaugh.
- F. W. BIRD & SON, East Walpole, Mass.: Paroid Roofing and Neponset Building and Insulating Paper. Represented by F. Lowe.
- BOMMER BROS., Brooklyn, N. Y.: Bommer Spring Hinges. Represented by E. A. Ditman.
- BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio: Boss Banner, Champion, 1904 Automatic, Uneeda, Cincinnati Square and Standard Perfection Washers. Represented by C. W. Magill.
- BROWN STAMPING COMPANY, Toledo, Ohio: Tin and Galvanized Ware, Brown's Improved Anti-Rust Ware, &c. Represented by O. H. Eggert, C. S. Duvall and F. H. Crawford.
- BURROUGHS ADDING MACHINE COMPANY, Detroit, Mich.: Adding Machines, particularly one for use in retail stores. Represented by R. W. Reid.
- CARBORUNDUM COMPANY, Niagara Falls, N. Y.: Complete line of Sharpening Stones, Scythe Stones, &c. Represented by G. N. Allen, G. E. Dresser and C. G. Emery.
- CATTARAUGUS CUTLERY COMPANY, Little Valley, N. Y.: Full line of Pocket and Table Cutlery, Scissors, Razors, &c. Represented by E. E. Kelley and W. B. Ten Brook.
- CENTRAL OHIO PAPER COMPANY, Columbus: Genasco Roofings, Sheathing Papers, Wrapping Paper, Twines, &c. Represented by F. B. Atchinson, E. L. Wood and M. C. Roberts.
- CHAMPION LEVER MACHINE COMPANY, Indianapolis, Ind.: Monitor Lever Cream Separator. Represented by J. M. Woods and H. H. Stamets.
- CHAMPION STEEL RANGE COMPANY, Cleveland, Ohio: Champion Hot Blast Steel Ranges, including interchangeable coal and gas Range. Represented by C. H. Miller, C. H. Miller, Jr., and L. M. Crane.
- CHASE COLVIN, South Charleston, Ohio: Stay-There Steel Fence Posts, Gates, Lawn Fence, &c. Represented by Chase Colvin, W. C. Ramsey and J. W. Hill.
- CINCINNATI GALVANIZING COMPANY, Cincinnati, Ohio: Queen Corrugated Ash Can and Sanitary Kitchen Pails. Represented by G. M. Schott and W. C. Mahoney.
- CLARK SHOWCASE COMPANY, Columbus: Floor Display Cases, Counters, &c. Represented by G. H. Clark and W. W. Lyman.
- COLONIAL WORKS, Bronzite Factory, Brooklyn, N. Y.: Permanent Green Bronzite. Represented by W. E. Amback and J. E. Mathews.
- COLUMBIAN HARDWARE COMPANY, Cleveland, Ohio: Tubo Registers, Ball Bearing Floor Spring Hinges, Columbian Wrought Steel Spring Hinges and Builders' Hardware. Represented by J. E. Stenger and F. W. Wood.
- COLUMBUS HEATING & VENTILATING COMPANY, Columbus: Combination Gas and Coal Heater and Coal Furnace and Ventilated Urinal. Represented by F. H. Field and D. D. McLellan.
- COLUMBUS ROOFING & SUPPLY COMPANY, Columbus: Carey Roofing, Pipe Coverings and Asbestos Goods. Represented by C. L. Cockrell, W. M. Hoffman, J. H. Cooper and A. R. Smith.
- COLUMBUS VARNISH COMPANY, Columbus: Architectural Varnishes and Crown Paint and Varnish Remover. Represented by W. P. Emboff.
- CONSTANCE COMPANY, Mansfield, Ohio: Blust Self-Recommend Churn. Represented by J. D. Constance, Jr.
- CYCLONE WOVEN WIRE FENCE COMPANY, Cleveland, Ohio: Cyclone Field and Lawn Fences, Gates, Borders, Tree Guards. Represented by C. J. Lane and L. A. Gaines.
- DAIRY CREAM SEPARATOR COMPANY, Lebanon, Ind.: Dairy Queen Cream Separator. Represented by W. B. Dix.
- FERDINAND DIECKMAN COMPANY, Cincinnati, Ohio: One-Piece Conductor Elbows, Speaking Tubes, &c. Represented by E. H. Hoffeld.
- DICKELMAN MFG. COMPANY, Forest, Ohio: Sheet Metal Supplies. Represented by C. H. Golling and J. H. Coughlin.
- DOVER MFG. COMPANY, Canal Dover, Ohio: Asbestos Sad Irons. Represented by D. L. Keyser and J. W. Muckley.
- ECONOMY STOVE COMPANY, Cleveland, Ohio: Elevated Oven Gas Ranges and Air Duct Natural Gas Heaters. Represented by A. L. Gassett, C. S. Smith and M. C. Boher.
- EMPIRE DRILL COMPANY, Shortsville, N. Y.: Empire Grain Drills and Broad-Casters and Corn Drills. Represented by E. W. Truax.
- FAIRBANKS, MORSE & CO., Cleveland and Cincinnati: Scales, Gasoline Engines, Electrical Machinery and Eclipse Rubber Roofing. Represented by H. W. Bonnell, H. E. Chickering, C. W. Sparr, B. M. Brooke and L. C. Allen.
- FARMERS' FENCE COMPANY, Bellefontaine, Ohio: Woven Wire Fence. Represented by K. A. Frick and J. R. Casey.
- FARQUHAR FURNACE COMPANY, Wilmington, Ohio: Welded Steel Warm Air Furnace. Represented by L. P. Beech and O. L. Skinner.
- FERROSTEEL COMPANY, Cleveland, Ohio: Registers and Ventilators. Represented by F. B. Cowley and A. E. Menke.
- FLEXIBLE STEEL LACING COMPANY, Chicago: Flexible Steel Belt Lacing. Represented by J. E. Crank.
- J. B. FORD COMPANY, Wyandotte, Mich.: Wyandotte Dairyman's Cleaner and Cleanser. Represented by R. W. McWhirter.
- GARRY IRON & STEEL COMPANY, Cleveland, Ohio: Galvanized Roofing, Asphalt Roofings, Trough and Conductor and Expanded Metal Lath. Represented by C. S. Bigsby, F. W. Horton and C. E. Justus.
- GERMER STOVE COMPANY, Erie, Pa.: Represented by C. C. Hammand and R. H. Knapp.
- GLASCOCK BROS. MFG. COMPANY, Muncie, Ind.: Glascock Racers, Baby Jumpers and Walkers, Charts and Desks and Washing Machines. Represented by J. J. Dow.
- GOSHEN MFG. COMPANY, Goshen, Ind.: Hay Slings and Carriers, Ladders, Lawn Swings and Boyer's Gliding Settees. Represented by G. M. Richardson.
- HANNA PAINT MFG. COMPANY, Columbus: Green Seal Liquid Paints and full line of Painters' Supplies. Represented by J. B. Hanna and staff.
- HART & COOLEY COMPANY, New Britain, Conn.: Wrought Steel Registers. Represented by S. McClelland.
- HASTINGS & ANDERSON, Chicago: Rock Island Tool Company's Vises and Mossberg Wrenches. Represented by P. H. Hamming.
- HENKEL MFG. COMPANY, Canal Dover, Ohio: Automatic Rain Water Shifter. Represented by F. Hoff.
- A. D. HOWE MACHINE COMPANY, Wheeling, W. Va.: Excello Water Power Washing Machines. Represented by W. G. Black and W. F. Weil.
- INDIANAPOLIS SADDLERY COMPANY, Indianapolis, Ind.: Harness, Blankets, Robes, &c. Represented by J. W. Walters and R. G. Spillman.
- JAYCOX MFG. COMPANY, Fishkill Landing, N. Y.: Jaycox Self-Closing Blind Hinge. Represented by E. L. Jaycox.
- H. W. JOHNS-MANVILLE COMPANY, Cleveland, Ohio: Asbestos Roofing, Cements, Packing, &c. Represented by Harry Gillette, P. A. Smith and A. A. Forshee.
- LAMB & PEERLESS WIRE FENCE COMPANY, Adrian, Mich.: Lamb and Peerless Fence. Represented by A. J. Walters, M. L. Gillen, A. L. Parker and Geo. Abbott.
- LANDERS, FRARY & CLARK, New Britain, Conn.: Universal Coffee Percolators, Coffee Machines, Cake Makers and Bread Makers. Represented by L. L. Redick and C. S. Williams.
- LASHER MFG. COMPANY, Davenport, Iowa: Spring-In Handle Pot Cover and Cabinets and Kitchen Kumfort Plate Scraper. Represented by L. G. Lasher.
- W. W. LAWRENCE & CO., Pittsburgh, Pa.: Lawrence Paints, Varnishes, White Lead, &c. Represented by H. G. Porterfield, G. E. Larter and E. D. Fenn.
- LOGAN-GREGG HARDWARE COMPANY, Pittsburgh: Represented by H. M. Baldwin, C. Knox, T. C. Reed and W. H. Parker.
- MCINTOSH HARDWARE CORPORATION, Cleveland, Ohio: Heather brand Tools and Cutlery. Represented by C. E. Clark, J. S. Harris, W. W. Dammel, J. Carson, E. Fruend, J. Anderson and E. E. Spottswood.
- MARYLAND BELTING & PACKING COMPANY, Baltimore, Md.: Ruby and Lord Baltimore Canvas Belts. Represented by G. D. Iverson, Jr., and H. C. Lawrence.
- MAY-FIEBERGER COMPANY, Akron, Ohio: Ath-a-nor, Solid Comfort and Akron Air Blast Furnaces. Represented by L. M. Pettitt and R. R. Coon.
- MICHIGAN WIRE FENCE COMPANY, Adrian, Mich.: Michigan Fence. Represented by C. P. Morse and E. G. Kuney.
- MIDLAND LINSEED COMPANY, Minneapolis, Minn.: Line of Linseed Oil. Represented by E. W. Donley.
- H. MITHOFF & CO., Columbus: Monarch Paints, Lawn Mowers, &c. Represented by Wm. Schunk, W. J. Saile, W. H. Amrhein and F. Lehman.
- NATIONAL CABLE & MFG. COMPANY, Niles, Mich.: National Copper Cable, Lightning Rods. Represented by O. Mitchell.
- NATIONAL ROOFING COMPANY, Tonawanda, N. Y.: Security, Safety, Royal and Crystalite Roofings and Permanent Asphalt Paints. Represented by C. H. Newell, W. W. Fluker and F. Crestlick.
- NATIONAL STOVE COMPANY DIVISION, American Stove Company, Lorain, Ohio: Direct Action Gas Ranges and Lorain Steel Ranges. Represented by J. R. Dickson and C. E. Bartenbach.
- L. F. NEEB, Butler, Ohio: Lightning Solder.
- T. H. NEVIN COMPANY, Pittsburgh: Pioneer Prepared Paints and White Lead. Represented by H. R. Gibbs, C. W. Stansbury and C. M. Freeman.
- NEW METHOD COMPANY, Mansfield, Ohio: New Method Gas Ranges. Represented by B. E. Hamlin and F. L. Wood.
- NEY MFG. COMPANY, Canton, Ohio: Haying Tools, Hangers and Hardware Specialties. Represented by I. N. Kinney and F. E. Stalder.
- OHIO BASKET COMPANY, West Liberty, Ohio: Hand Made Round Splint White Oak and Rattan Corn and Feed Baskets. Represented by S. C. Black.
- OHIO VARNISH COMPANY, Cleveland: Chi-namel Varnish and Self-Graining Process. Represented by W. J. Knapp, W. H. Hetrick and A. F. Walker.
- OLIVER MACHINERY COMPANY, Grand Rapids, Mich.: Quick Acting Vises, Foster Turn Table Planes and Hand Screws. Represented by G. V. Stoddard.
- OMAHA LIGHTNING ROD & ELECTRIC COMPANY, Omaha, Neb.: Lightning Rods. Represented by T. B. and Daisy Adams.
- ONEIDA COMMUNITY, Oneida, N. Y.: Community Silver Ware, Chains, Traps, &c. Represented by J. H. Cragin and L. A. McFarland.
- ONE-MINUTE WASHER COMPANY, Sandusky, Ohio: One-Minute Washer. Represented by A. J. Leake.
- ONYX PAINT COMPANY, Columbus: Muresco Interior Water Finish, made by Benjamin Moore & Co., New York. Represented by H. J. Dobson and C. W. Cadie.
- PERFECTION MFG. COMPANY, Columbus: Perfection Mortiser and Tool Grinder. Represented by G. W. Campbell.

PETALUMA INCUBATOR COMPANY, Petaluma, Cal.: Incubators. Represented by A. M. Williams.

PETERS BUGGY COMPANY, Columbus: Buggies. Represented by D. B. Smith and G. W. Landes.

PHOENIX HORSE SHOE COMPANY, Joliet, Ill., and Poughkeepsie, N. Y.: Horse Shoes. Represented by R. J. Clarke.

PIKE MFG. COMPANY, Pike, N. H.: Complete line of Sharpening Stones with new combination stock and display cabinet and Pyko Grinder in operation. Represented by J. A. Winters, R. J. Horton and J. C. Peirce.

PITTSBURGH PLATE GLASS COMPANY, Pittsburgh, Pa.: Patton's Sun-Proof Paints, Rennous-Kleinle Brushes, &c. Represented by A. W. Martin, J. A. Kight, A. R. Hock, B. C. Root and C. C. Breeding.

PITTSBURGH STEEL COMPANY, Pittsburgh: Pittsburgh Perfect Fence. Represented by E. Steytler, G. W. Hampshire and E. D. Findlay.

PRATT & LAMBERT, Buffalo, N. Y.: All Star line of Varnishes and Andrews' Nukote for floors, furniture and woodwork. Represented by A. S. Butler, C. D. Sproule and E. B. Bailey.

PRITCHARD-STRONG COMPANY, Rochester, N. Y.: Prisco Money-Back Metal Ware, including Dinner Pails, Wash Boilers and Tubs, Dairy Pails and Sanitary Sink Strainer and Prisco Lanterns. Represented by A. J. Brede.

REX BUGGY COMPANY, Connersville, Ind.: Rex Buggy with Star Ball Bearing Axle. Represented by W. W. Hurst and E. J. Ryan.

RUBY CHEMICAL COMPANY, Johnstown, Ohio: Ruby Soldering Compound. Represented by D. L. Palmer and O. C. Hoover.

ST. LOUIS CORDAGE COMPANY, St. Louis, Mo.: Mound City Binder Twine, Rope and Fodder Yarn. Represented by Will Cumback.

F. O. SCHOEDINGER, Columbus: Metal booth showing Steel Cellings, Sidings, Roofing, Cornices, Skylights, Finials, Stamped Work, &c. Represented by G. Z. Hayes, F. G. Mirick, O. Baker and F. O. Schoedinger.

J. H. & F. A. SELLS COMPANY, Columbus: Harness, Horse Collars, Robes, Blankets, &c.

SHELBY SPRING HINGE COMPANY, Shelby, Ohio: Shelby Chief Double Acting Floor Hinge, Ball Bearing Spring Butts and Stamped Steel Goods. Represented by H. W. Steele and L. D. Malone.

SIDNEY HOLLOW WARE COMPANY, Sidney, Ohio: Full line of cast iron polished and nickel plated Cooking Utensils. Represented by A. A. Gerlach.

SIDNEY STEEL SCRAPER COMPANY, Sidney, Ohio: Wheelbarrows, Wheel and Drag Scrapers, Trucks, &c.

SMITH BROS. HARDWARE COMPANY, Columbus: Acme White Lead & Color Works' Paints, Oils and Varnishes, Village Blacksmith Tools, Du Pont Powder, Waverly Washers and Indurrol Roofing.

SPRING STEEL FENCE & WIRE COMPANY, Anderson, Ind.: Shimer Fence, Farm Gates, Fence Stretchers and Fence Tools. Represented by S. C. Hill, O. B. Smith and W. S. Poling.

STANDARD LIGHTING COMPANY, Cleveland, Ohio: Visible Gas Ranges and New Process Oil Cook Stoves. Represented by J. R. Dickson and C. E. Bartenbach.

STANDARD MFG. COMPANY, Shelby, Ohio: Champion and Standard Double Acting Spring Hinges and New Home, National and New Shelby Washers. Represented by F. Brucker, Chas. L. Bushey, Ferd. Brucker and R. R. Shultz.

STANLEY WORKS, New Britain, Conn.: Wrought Steel Butts and Hinges, Brackets and Japanned Strap and T Hinges. Represented by S. McClelland.

STOVE & RANGE COMPANY OF PITTSBURGH, Pittsburgh: Cinderella, Good Luck and Trade Mark Stoves and Ranges. Represented by H. M. Baldwin, T. C. Read and C. Knox.

THRESHER VARNISH COMPANY, Dayton, Ohio: Thresher Varnishes and Bolled Linseed Oil. Represented by J. A. Pfanner.

TOLEDO STOVE & RANGE COMPANY, Toledo, Ohio: Gem Gas Range, Capital, New Toledo and Ideal Coal Ranges, Radiant Gem and Gem Base Burners and Taylor's Gas Heater. Represented by B. J. Taylor and B. F. Long.

TRACY-WELLS COMPANY, Columbus: Onyx Enameled Ware, Glacier and Edelweiss Refrigerators, Hamilton Rifles and Specialties. Represented by G. W. Hines, J. F. Hinchbaugh and E. W. McCuskey.

UNION COOPERAGE COMPANY, St. Louis, Mo.: Water Coolers, Harvest Kegs and Well Buckets. Represented by F. J. Benner.

VEHICLE APRON & HOOD COMPANY, Columbus: Waterproof Aprons, Hoods, Horse Covers, &c., Leggings, Feed Bags, &c. Represented by B. B. Clark and W. R. Daugherty.

VERMONT FARM MACHINE COMPANY, Bellows Falls, Vt.: United States Cream Separator. Represented by Floyd J. Smith, D. W. Hurr, G. N. Farr and E. M. Sovocool.

JACOB J. VOLLRATH MFG. COMPANY, Sheboygan, Mich.: Special blue and pure white Enameled Ware. Represented by C. D. Brown.

WAGNER MFG. COMPANY, Sidney, Ohio: Cast Aluminum Cooking Utensils and Cast Iron Hollow Ware. Represented by W. F. Mellen and E. W. Laughlin. Souvenir, fac-simile of first casting made in the United States.

H. F. WATSON COMPANY, Erie, Pa.: Roofing, Asbestos, Building Papers, Pipe Covering, &c. Represented by W. L. Bennett.

WHITE LILY MFG. COMPANY, Davenport, Iowa: White line of Washing Machines, including the new White Washer and Gasoline Engines. Represented by R. P. Searle and A. F. Victor.

WHITE MOP WRINGER COMPANY, Fultonville, N. Y.: White Mop Wringers. Represented by F. S. Porter.

WOOD-SHINE COMPANY, Chicago: Wood-Shine Color Varnish and Graining Compound. Represented by E. A. Benedict, R. Benedict, C. C. Allen and W. R. Rae.

S. S. WYER, Columbus: Automatic Rain Water Cut-off and Y R Iceless Cooler.

YOST GEARLESS MOTOR COMPANY, Springfield, Ohio: Yost Gearless Motor Washer. Represented by C. J. Scheilman.

Many representatives of manufacturing and jobbing houses attended the convention in an informal way or entertained in their rooms at the hotels. Among these were noted the following:

Columbus Hardware Company, Columbus: Occupied suite in Southern Hotel.

American Steel & Wire Company, Chicago: Suite in Chittenden Hotel.

J. M. & L. A. Osborn Company, Cleveland: Represented by L. A. Osborn, J. R. Reichert, R. E. Curtis, E. C. Howard, A. Hossler, A. Howe and J. G. Henninger.

Genuine Bangor Slate Company, Easton, Pa.: Represented by R. S. Brown, E. R. Armstrong, J. Stewart and E. W. Skinner.

Art Stove Company, Detroit: Represented by J. Huntley, F. Wilson and E. F. Hahn.

Bostwick Braun Company, Toledo, Ohio: Suite at hotel.

Lowe Bros. Company, Dayton, Ohio.

Rathbone, Sard & Co., Aurora, Ill.: Represented by F. R. McGrew.

Rochester Stamping Company and Robeson Cutlery Company, Rochester, N. Y.: Represented by G. A. Teller.

Lisk Mfg. Company, Canandaigua, N. Y.: Represented by C. H. Hughes.

Cleveland Co-operative Stove Company, Cleveland: Represented by O. M. Zehring.

Van Camp Hardware & Iron Company, Indianapolis, Ind.: Represented by E. H. Erk.

Meriden Cutlery Company, Meriden, Conn.: Represented by S. L. Gudgeon.

Northern Ohio Blanket Mills, Cleveland: Represented by D. H. Bingham.

Empire Cream Separator Company, Bloomfield, N. J.: Represented by R. Anthony.

Estate of P. D. Beckwith, Dowagiac, Mich.: Represented by D. W. Van Antwerp.

Cribben & Sexton Company, Chicago: Represented by D. E. Magee.

Lindsay Light Company, Chicago: Represented by H. L. Town.

Lovell Mfg. Company, Erie, Pa.: Represented by I. B. Wingate.

Reed Mfg. Company, Newark, N. J.: Represented by W. G. Olmstead.

Geo. Worthington Company, Cleveland: Represented by H. P. Wood.

Simonds Mfg. Company, Chicago: Represented by W. J. Feddery.

Standart-Simmons Hardware Company, Toledo, Ohio: Represented by W. W. Osborn.

Bindley Hardware Company, Pittsburgh: Represented by Mr. Stoneburger.

### Beaver Handy Tool Box.

The Beaver Mfg. Company, Beaver, Pa., has added to its line the tool box illustrated herewith. It is strongly made of 22 gauge galvanized iron and is given a coat of aluminum paint, which is said to make it absolutely rustproof. There are no raw edges. It is 18 in. long, 7 in. wide, 9 in. deep at the back and 5 in. deep in front. It is furnished with a padlock and chain. This tool box



Beaver Handy Tool Box.

is recommended by the manufacturer for the home, for farmers, to protect small tools, oil cans, &c., used on agricultural machinery; for the stable, to contain curry combs, brushes, wrenches and other articles, often needed; for factories, &c. The boxes can be secured to the wall by screws, which cannot be removed until the box is open.

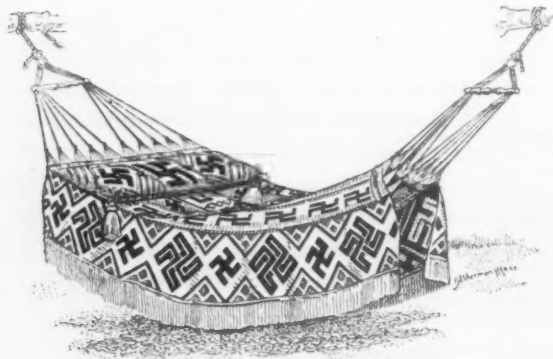
### Durand Steel Lockers.

The Durand Steel Locker Company, Chicago, is manufacturing an extensive line of steel lockers and wardrobes, which are carried in stock in several standard sizes, single tier or double tier. These are furnace baked, black japanned finish, similar to bicycles, which is said to be handsomer and more durable than paint or air dry enamel. No. 16 gauge steel is used for the doors, making them strong enough to withstand the usual slamming and the knocks that come against the fronts. No. 20 gauge steel is used for the remainder of the locker. It is stated that this unusually heavy construction is favored because light sheet steel can be easily cut if one wants to steal from the locker, and the metal will pull away from the bolts under pressure. Ventilation is afforded by perforation, which can be as liberal as desired. Lockers are equipped with keyless locks, rim key locks or padlocks, as preferred. All corresponding parts are interchangeable, so that lockers can be arranged in different groupings without cutting or mechanical alterations. They are usually shipped knocked down to save freight as all parts fit accurately and no skilled labor is necessary to erect them.



### Swastika Design Hammock.

The I. E. Palmer Company, Middletown, Conn., manufacturer of cotton tissues, hammocks, mosquito netting, window screen cloth, canopies and canopy fixtures, self-adjusting pulleys, &c., has added to its extensive output of hammocks a line in the new Swastika design here illustrated. This design is referred to as an old emblem

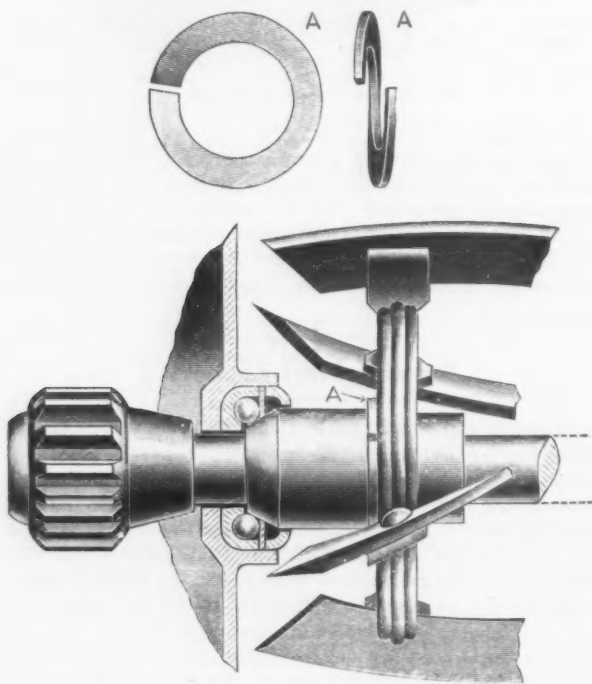


Swastika Design Hammock.

of good luck, which is proving popular in many lines of manufacture. It has been adapted to a Jacquard design for hammocks, as shown in the illustration, and the company has secured a patent on its use. Three attractive color combinations are offered, white and olive, red and green and black, green and white.

### Blair Self-Adjusting Ball Bearing Lawn Mowers.

The Blair Mfg. Company, Springfield, Mass., manufacturer of lawn mowers, is offering this season an improvement in the way of self-adjusting ball bearings,



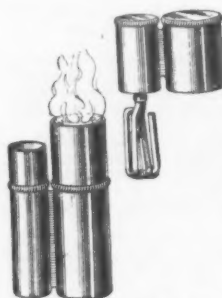
Blair Self-Adjusting Lawn Mower Ball Bearings.

detail of which is shown in the accompanying illustration. In this device, which is covered by patents, the rotary cutter shaft has at both ends bearings with tapered contact surfaces, with a sort of spring washer indicated by A in the diagram, which prevents the separation of these contact surfaces from their seats in the bearings of the side frames, thus maintaining a yielding contact between the bearings of the shaft and their supports. This provides automatic compensation for any

lost motion in the bearings caused by wear, springing or warping of the frame parts or other causes. The results claimed by the company from the use of these bearings are that they do not require adjustment, that the revolving knives run true and bear evenly on the stationary knife, and that there is a resultant marked improvement in the work done, and in the ease of operating the machines.

### Flaming Pocket Lighter.

The Auto Igniter Company, 1947 Broadway, New York, has just put on the market the Auto Igniter, or flaming pocket lighter, for smokers' pocket use as here shown,

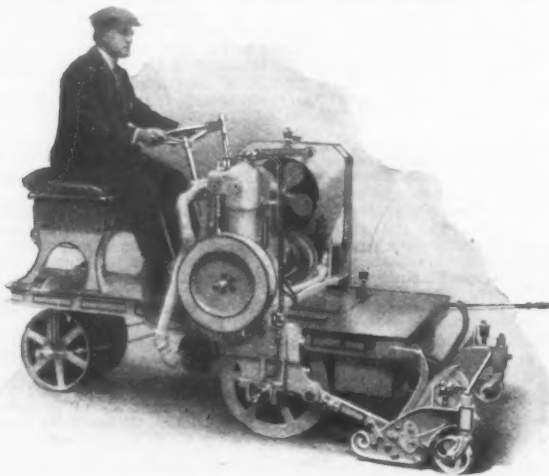


Pocket Lighter, Half Size.

being an improved form of a similar article originally brought out by it last year. It is intended for lighting purposes as a substitute for matches, except that it is said to be more reliable in windy weather, not affected by moisture and cheaper than matches. It is strongly made of seamless metal tubing, polished and nicked, having four fine platinum wires protected by a cage-like formation of four strong brass wires. The outer dimensions are 2 x 1½ x ⅝ in., and it weighs ready for use less than 1 ounce. The larger tube is lined with cotton wick, which is to be saturated occasionally with deodorized wood alcohol or Columbian spirits (not grain alcohol). To obtain a blue flame instantly the upper portion is withdrawn and the platinum wired cage inserted in the saturated wicking, which owing to the manner of its installation causes the platina to glow and ignite the gaseous alcoholic substance. The device is well and substantially made, has milled edges, and is packed with a vial of suitable spirits in a neat double slide cover paste-board box.

### Coldwell's Motor Lawn Mower.

The Coldwell Lawn Mower Company, Newburgh, N. Y., has put on the market the motor lawn mower illustrated herewith. The machine weighs 2000 lb. and, it is said, will negotiate 25 per cent. grades. It consumes from ½ to ¾ gal. of gasoline per hour, cuts a 40-in. swath and is alluded to as doing three times as much



Coldwell's Motor Lawn Mower.

work in a day as an ordinary horse lawn mower. The cutting part can be lifted free from the ground by means of a single lever. The mower is intended for use on large lawns, such as found in connection with golf grounds, parks and extensive estates.

The Macon Hardware Company, Mineral Wells, Texas, has been incorporated with a capital of \$10,000, by A. W. Macon, V. O. Rosser and George Mellers.

### Harris Geared Ventilating Devices.

The Payson Mfg. Company, Chicago, is manufacturing an improved line of ventilating apparatus and skylight operators. Three designs of these devices are shown in the accompanying illustration. That shown in Fig. 1 is

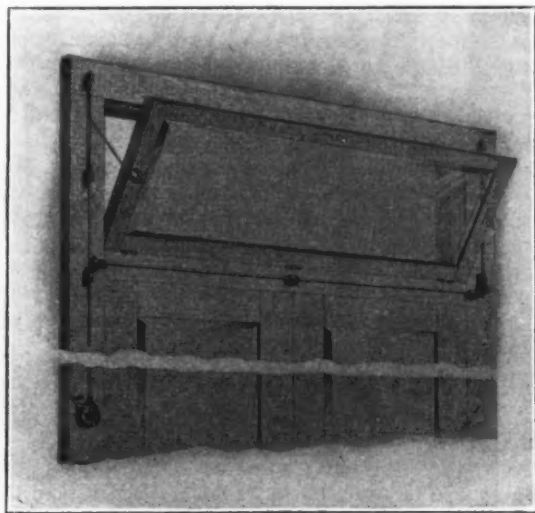


Fig. 1.—Harris Geared Transom Operator No. 1.

intended to operate heavy bottom hung transoms, although it may be used for pivoted or top hung sashes. It is said to be easy of adjustment and operation, and is worked from one side as indicated. It closes the

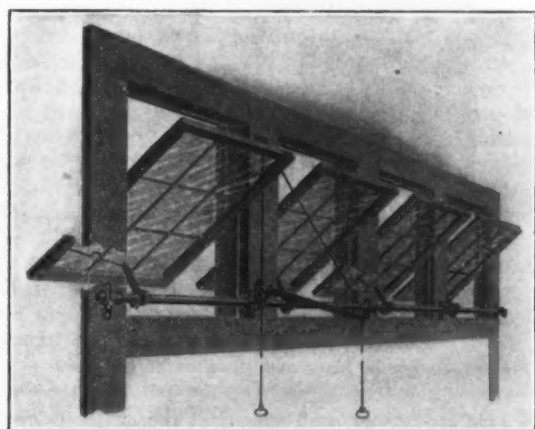


Fig. 2.—Harris Geared Operator No. 2 for Gangs of Windows.

transom tight and keeps the sash from twisting and noisy vibration. Two sizes are offered having  $\frac{3}{8}$  and  $\frac{1}{2}$  in. rods, respectively, and all varieties of finish are also furnished on order. Fig. 2 shows a geared operator for

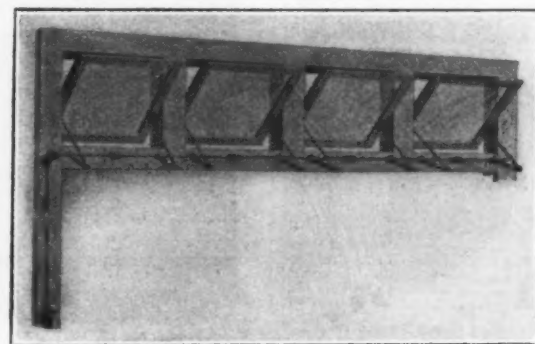


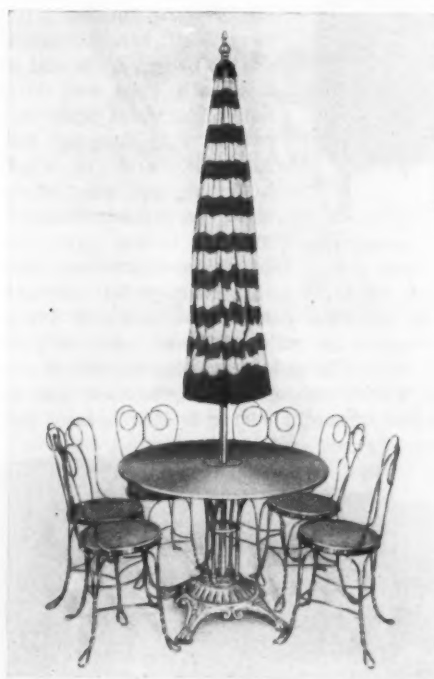
Fig. 3.—Harris Operator No. 3 for Gangs of Transoms.

gangs of four or five windows, which is worked by pulling the handles attached to the gear arm. It is stated that when closed the windows are absolutely locked by

this device, and when open the leverage exerted is such as to prevent any movement or vibration of the sash, even by the highest wind. These operators are fitted for  $\frac{7}{8}$ -in. pipe, having an outside diameter of  $1\frac{1}{8}$  in. Fig. 3 shows an operator which is intended for use where the point of operation is directly beneath at either end of a line of transoms. It is simple in construction, and, it is said, will easily control a gang composed of as many as 12 windows.

### The Lawneta Canopy Table.

The Hurley Machine Company, Chicago, Ill., is offering the canopy table outfit illustrated herewith. The table is made in artistic metal design, 40 in. in diameter and accommodates six people comfortably. The chairs, entirely of metal, are strong and durable. The canopy is 9 ft. in diameter and the rib framework is made of steel, so as not to bend or break. The pole supporting the canopy is inserted in a pipe which is screwed into the ground for out of door use, and the canopy can be adjusted to any height desired. The canopy is made of



The Lawneta Canopy Table.

heavy sail drill in the following colors: Green and white stripes, red and white stripes, orange and white stripes, solid tan and solid drab, the fringe matching the solid color. The canopy has a ring on the outer end of each rib, and curtains can be furnished with snap rings, to be hooked to the canopy for protection from sun or wind as well as affording seclusion for the occupants. The canopies are designed for use on lawns, verandas, country club grounds, open air cafés, parks, &c., and can be readily moved to any location.

### Hennen's Glazing Paste.

The Minnesota Weatherproof Paste Company, 210 Plymouth avenue, Minneapolis, Minn., has recently put on the market Hennen's glazing paste, similar in character, but much superior, it is asserted, to putty. One advantage named is that unlike putty it will not dry up and fall off, it being a tough and durable composition. It is used for skylights, bedding and cementing miters on plate glass, hot houses, filling cracks and openings between window frames in stone or brick, &c., It can be supplied in color to match body, when ordered in sufficient quantities, and regularly in ordinary putty color and black. It is put up in small tin boxes and 50, 100 and 500 packages.



### Steel Lockers and Shelving.

The accompanying illustrations are representative of two lines manufactured by the Federal Steel Fixture Company, 493-501 West Kinzie street, Chicago, Ill. The lockers shown in Fig. 1, as well as other styles, are built on the unit system, so that they can be shipped knocked down, effecting a saving in freight charges, and can be erected by inexperienced workmen quickly and easily at destination. The lockers are so arranged that any number can be joined together in a continuous row. The fronts and backs are assembled complete, each securely riveted together and entirely supported by angle iron frames. The sides are accurately punched and the entire locker can be set up with no other tools than a wrench and screw driver. The lockers are finished with baked enamel of various colors, being put on in two coats and baked to a smooth, hard and durable finish. The steel shelving shown in Fig. 2 is designed for use in factories, and is made with heavy flanged steel shelves and solid partitions securely bolted together in one rigid section. It is shipped knocked down and can readily be erected on receipt.

The shelving can be unbolted and taken apart at any time and moved to different parts of the factory without injury. The point is made that this is practically impossible where wooden shelving is used, and also that while the cost of steel shelving is a little more than wood

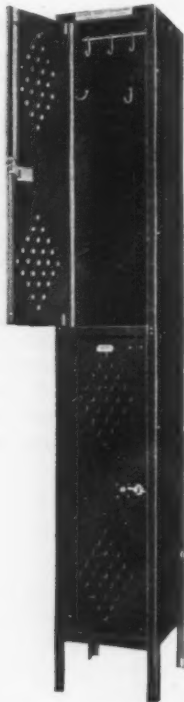


Fig. 1.—Double Tier Lockers.



Fig. 2.—Federal Steel Shelving.

at the beginning, experience has shown that it is much cheaper in the long run. The shelving has a carrying capacity of 100 lb. per square foot per shelf. Each section has 10 shelves 36 in. long, 24 in. wide, with 7-in. spaces between shelves.

### Rust's Invisible Top Hanger and Fastener.

For hanging full or half size window screens, E. G. Rust, Dallas, Texas, is manufacturing the invisible hangers and fasteners as herewith illustrated. For hanging full screens the end of the hanger marked F in Fig. 1 is put flush with the top and inner face of the screen, and the pins or screws are located at the top of the opening, as shown in Fig. 3, so that the point of the hook of the hanger will just pass over the pin or screw when the screen is placed in the opening. The fasteners may be applied, as shown in Fig. 5, at any point necessary most

effectively to draw the screen frame against the blind stop. For half screens the end of the hooks marked H in Fig. 1 is placed uppermost, and applied as shown in Fig. 4. Among the points of excellence the following are mentioned: That the hangers and fasteners are comparatively low in price; that the fixtures are easily and

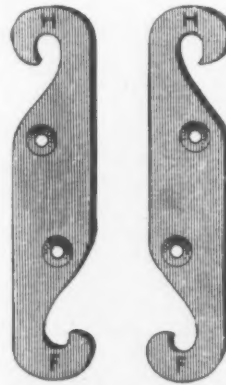


Fig. 1.—Rust's Invisible Screen Hangers.

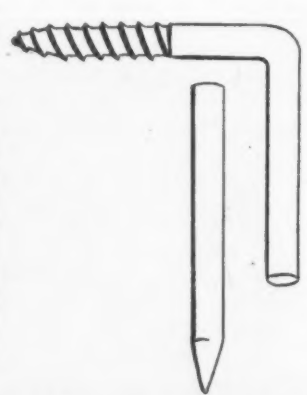


Fig. 2.—Pins and Screw Hooks for Rust's Invisible Screen Hangers.

quickly applied to screens before they are put up, and the only overhead work is driving two screws in the casings at the top of the window, this being done from the inside of the building on second and third floors, obviating the

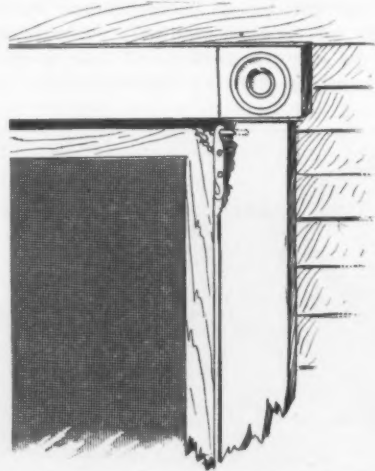


Fig. 3.—Screen in Place and Hung on Screw Hooks.

use of long ladders or scaffolds; that the device is operated, removed and replaced with ease by any one who is strong enough to handle the screen; that being invisible it does not mar the outside appearance of the house, or cause rusty streaks on white or light colored casings; that

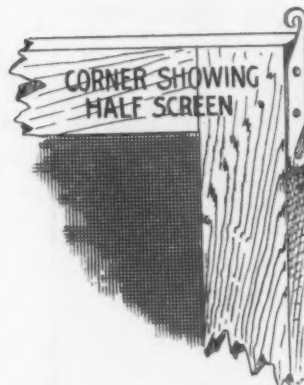


Fig. 4.—Hanger as Attached to a Half Screen.

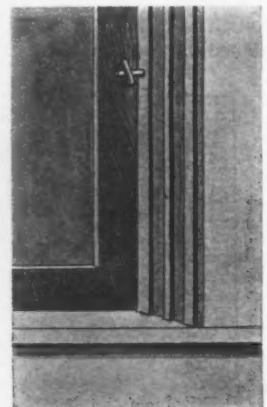


Fig. 5.—Fastener Applied to Draw Screen Frame Against Blind Stop.

the hanger can be used on the ordinary brick mold, and that both full or half screens can be hung with the same hangers.

## New Model No. 24 Marlin Repeating Shotgun.

The Marlin Firearms Company, New Haven, Conn., is offering the 12 gauge take down shotgun here illustrated. The improved take down construction does away with the foreend slide stop, slide screw in band, forearm screws and escutcheons and other small parts. The magazine is not cut away at the front as in the company's former models, and there are no sharp edges or corners. The entire front end is supported by the tube plug, which keeps the magazine firmly locked in its closed position, yet allows the tube to go forward instantly when the latch is pressed. A ring on the magazine under the steel core of the forearm prevents the action bar disconnecting from the locking bolt when the magazine is closed. When the tube is moved forward, the forearm and action bar readily slide forward to clear the frame and are held in this position by a friction spring. The barrel turns into the frame with a large, square, left hand thread that leaves exactly the

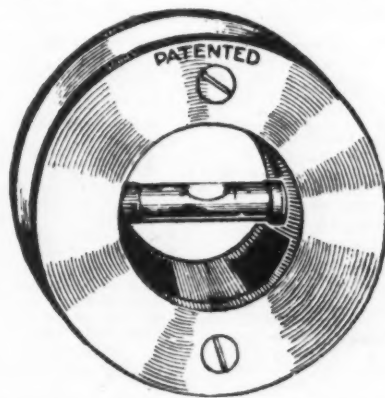


New Model No. 24 Marlin Repeating Shotgun.

same amount of metal at this point of greatest strain, with exactly the same distribution as in a solid frame, non-take down gun. The lock nut, threaded to turn on the barrel and lightly clamped abutting the front end of the frame, takes up the wear and insures a firm and rigid union. The company's improved automatic recoil block hooks on to the locking bolt when closing the action and holds the gun firmly locked until after the explosion of the cartridge, when it instantly and automatically releases by the recoil. Extra interchangeable barrel portions complete can be furnished, by which this long range trap or duck gun can be quickly changed into a brush gun suitable for birds and short range work, and for the use of buck shot. The model No. 24 can also be furnished in grades B C and D, same quality of material and workmanship and same prices in the respective grades, as the company's model No. 19.

## The Diamond Adjustable Spirit Level-Plumb.

The Diamond Power Specialty Company, 234-236 Fort street, West, Detroit, Mich., is putting on the market the spirit level-plumb, shown herewith. It can be attached to a straight edge by boring a plain, round hole and mounting the device in the hole. The device consists of two metal disks 2 3/4 in. in diameter, with an opening in the center of 1 1/4 in., and having on the reverse sides two lugs or bearing posts. When placed in position the lugs of one disk rest against the other disk, forming four bearing points between the two disks. Into one set of lugs are inserted hollow tubes that hold the common level glass, and from the face of that disk are inserted two screws entering into the end of the lugs of the other



The Diamond Adjustable Spirit Level-Plumb.

disk. The level glass is mounted in the little tubes or bushings, and can be placed in position by the average mechanic, as comparatively little skill is required. The bushings are split into quarters at the outer ends, thus forming a flexible bearing against solid metal lugs which, it is claimed, make it almost impossible to break the glass by a fall. The little screw through the end of one of the bushings into the lug holds the glass firmly in place. The device is such that at the will of the workman it may be used either as a level and plumb or inclinometer. It is designed to take the place of the plumb bob and line as used on a plumb staff, and it can be attached to any straight edge of any length to suit any conditions of work. The company claims that the device is more rapid in its operation than either the straight edge and level or bob and line.

## PAINTS, OILS AND COLORS

## Animal, Fish and Vegetable Oils—

Animal, Fish and Vegetable Oils—	per gal.
Linsed, State and Western, raw, in bbls.	41 @ 42
City, Boiled, in bbls.	44 @ 45
City, Raw, in bbls.	43 @ 44
Raw, Calcutta, in bbls.	70 @ 71
Lard, Prime, Winter.	65 @ 70
Extra No. 1.	55 @ 57
No. 1.	47 @ 52
Cotton-seed, Crude, f.o.b. mill.	28 1/2 @ 29 1/2
Summer Yellow, prime.	37 1/2 @ 37 1/2
Summer White.	39 @ 39 1/2
Yellow Winter.	40 @ 40 1/2
Tallow, Prime.	58 @ 60
Menhaden, Brown, Strained.	41 @ 42
Light Strained.	41 @ 42
Northern.	37 @ 38
Southern.	37 @ 38
Cocanut, Ceylon.	10 1/2 @ 11
Cochin.	10 1/2 @ 11
Cod, Domestic, Prime.	42 @ 44
Newfoundland.	44 @ 46
Red, Elaine.	40 @ 42
Saponified.	10 1/2 @ 11
Olive, Yellow.	54 @ 57
Neatsfoot, Prime.	55 @ 58
Palm, Lagos.	10 1/2 @ 11

## Mineral Oils—

Black, 29 gravity, 25@30 cold test.	13 @ 13 1/2
29 gravity, 15 cold test.	13 1/2 @ 14
Summer.	12 1/2 @ 13
Cylinder, light filtered.	20 1/2 @ 21
Dark, filtered.	18 @ 19
Paraffine, 903-307 sp. gravity.	14 1/2 @ 15
903 sp. gravity.	13 1/2 @ 14
883 sp. gravity.	11 @ 11 1/2
Red.	13 1/2 @ 14

## Miscellaneous—

Barytes:	
White, Foreign.	10 ton \$18.50 @ 20.50
Amer. floated.	10 ton 19.00 @ 20.00
Off color.	10 ton 13.00 @ 16.50

Chalk, in bulk.	10 ton 3.00 @ 3.40
China Clay Imported.	10 ton 11.50 @ 12.00
Cobalt, Oxide.	100 lb 1.45 @ 2.60
Whiting, Commercial.	100 lb .42 @ .52
Gilders.	100 lb .55 @ .60
Ex. Gilders.	100 lb .60 @ .65

## Putty, Commercial—

In bladders.	100 lb .17 @ .25
In bbls. or tubs.	1.20 @ 1.45
In 1 lb to 5 lb cans.	2.65 @ 2.95
In 12 1/2 to 50 lb cans.	1.50 @ 1.90

## Spirits Turpentine—

In Oil bbls.	51 @ 51 1/2
In machine bbls.	51 1/2 @ 52

## Glue—

Cabinet.	12 @ 15
Common Bone.	7 1/2 @ 9
Extra White.	18 @ 21
Fish, Liquid, 50 gal. bbls., per gal.	60 @ 60
Foot Stock, White.	12 @ 14
Foot Stock, Brown.	9 @ 11
German Common Hide.	10 @ 12
German Hide.	12 @ 18
French.	10 @ 16
Irish.	13 @ 16
Low Grade.	10 @ 12
Medium White.	14 @ 17

## Gum Shellac—

Bleached, Commercial.	23 @ 24
Bone Dry.	29 @ 30
Button.	40 @ 40
Diamond I.	47 @ 48
Fine Orange.	30 @ 35
A. C. Garnet.	27 @ 28
G. A. L.	20 @ 22
Kala Button.	18 @ 20
D. C.	18 @ 20
Octagon B.	38 @ 40
T. N.	23 @ 24
V. S. O.	47 @ 48

## Colors in Oil—

Black, Lampblack.	12 @ 14
Blue, Chinese.	36 @ 46
Blue, Prussian.	32 @ 36
Blue, Ultramarine.	13 @ 16
Brown, Vandyke.	11 @ 14
Green, Chrome.	12 @ 16
Green, Paris.	21 @ 24
Sienna, Raw.	12 @ 15
Sienna, Burnt.	12 @ 15
Umber, Raw.	11 @ 14
Umber, Burnt.	11 @ 14

## White Lead, Zinc, &amp;c.—

Lead, English white, in Oil.	10 1/2 @ 10 3/4
Lead, American White:	
Lots of 500 lb or over, in Oil.	@ 6 1/2
Lots less than 500 lb, in Oil.	@ 7 1/4
Lead, White, in oil, 25 lb tin pails.	@ 7 1/4
Lead, White, in oil, 12 1/2 lb tin pails.	@ 7 1/4
Lead, White, in oil, 1 to 5 lb assorted tins.	@ 8 1/2
Lead, American. Terms: On lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice.	@ 8 1/2

## Zinc, Dry—

American, dry.	5 1/2 @ 5 3/4
(French process), Red Seal.	6 1/4 @ 7
(French process), Green Seal.	7 1/4 @ 7 3/4
Dry German (French process), Red Seal.	6 1/4 @ 7
Green Seal.	7 1/4 @ 7 3/4
White Seal.	7 1/4 @ 8 1/4
French, Red Seal.	8 1/4 @ 8 3/4
Green Seal.	10 1/2 @ 10 3/4

## Dry Colors—

Black, Carbon.	6 1/2 @ 10
Black, Drop, American.	1 1/2 @ 3
Black, Drop, English.	1 1/2 @ 3
Black, Irony.	16 @ 20
Lamp, commercial.	4 @ 6

Blue, Celestial.	4 @ 6
Blue, Chinese.	31 @ 33
Blue, Prussian.	29 @ 31
Blue, Ultramarine.	3 1/2 @ 15
Brown, Spanish.	1 1/2 @ 1
Carmine, No. 40.	3.10 @ 3.25
Green, Chrome, ordinary.	3 1/2 @ 5
Green, Chrome, pure.	17 @ 25
Lead, Red, bbls., 1/2 bbls., kegs.	@ 6 1/2
Litharge, bbls., 1/2 bbls., kegs.	@ 6 1/2
Ocher, American.	10 ton \$8.50 @ 16.00
American Golden.	2 1/2 @ 3 1/4
French.	1 1/2 @ 2
Foreign Golden.	3 @ 4
Orange Mineral, English.	10 @ 11
French.	12 1/2 @ 13
German.	10 @ 11
American.	8 1/2 @ 8 3/4
Red, Indian, English.	4 1/2 @ 6
American.	3 @ 3 1/4
Red, Turkey, English.	4 @ 10
Red, Tuscan, English.	7 @ 10
Red, Venetian, Amer.	100 lb \$0.50 @ 1.25
English.	100 lb \$1.15 @ 1.60
Sienna, Italian, Burnt and Powdered.	3 @ 9
Italian, Raw, Powdered.	3 @ 7
American, Raw.	14 @ 2
American Burnt and Pow'd.	14 @ 2
Talc, French.	10 ton \$18.00 @ 25.00
American.	10 ton 15.00 @ 25.00
Terra Alba, French.	100 lb .90 @ 1.00
English.	100 lb .80 @ 1.00
American.	100 lb No. 1. .75 @ .90
American.	100 lb No. 2. .60 @ .85
Umber, T'key, Bnt. & Pow.	2 1/2 @ 3
Turkey, Raw and Powdered.	2 1/2 @ 3
Burnt, American.	1 1/2 @ 2
Raw, American.	1 1/2 @ 2
Yellow Chrome, Pure.	13 @ 15
Vermilion, American Lead.	7 @ 25
Quicksilver, bulk.	@ 6
Quicksilver, bags.	@ 6
English, Imported.	@ 6
Chinese.	\$0.90 @ 1.00



# Current Hardware Prices.

**General Goods.**—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

**Special Goods.**—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

**Range of Prices.**—A range of prices is indicated by means of the symbol @. Thus 33½ @ 33½ & 10% signifies

that the price of the goods in question ranges from 33½ per cent. discount to 33½ and 10 per cent. discount.

**Names of Manufacturers.**—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1907, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

**Standard Lists.**—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

**Additions and Corrections.**—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

## Adjusters, Blind—

Columbian and Domestic.....33½%  
North's.....10%  
Zimmerman's—See Fasteners, Blind.

## Window Stop—

Ives' Patent.....31%  
Taplin's Perfection.....36%

**Ammunition—**See Caps, Cartridges, Shells, &c.

## Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, ½ doz. pairs, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

**Anvils—American—**  
Eagle Anvils.....@8½¢  
Hay-Budden, Wrought.....@9½¢  
Trenton.....@9½¢

**Imported—**  
Swedish Solid Steel Sisco, Superior, ½ lb.....@10½¢  
Peter Wright & Sons, ½ lb. 84 to 340 lb. 11¢; 350 to 600 lb. 11½¢.

**Anvil, Vise and Drill—**  
Millers Falls Co., \$18.00.....@15½¢

**Apple Parers—**See Parers, Apple, &c.

**Aprons, Blacksmiths'—**  
Livingston Nail Co.....10%

**Augers and Bits—**

Com. Double Spur.....75¢@10¢  
Jennings' Patn. Bright.....65¢@70¢  
Black Lip or Blued.....65¢@65¢  
Boring Mach. Augers.....70¢  
Car Bits, 12-in. twist.....40¢@10¢  
Ford's Auger and Car Bits.....40¢@5¢  
Ft. Washington Auger Co., Concord's.....35¢  
Forster Pat. Auger Bits.....25¢  
C. E. Jennings & Co., No. 19 ext. lip, E. Jennings' list, 25¢@7½¢  
No. 30, R. Jennings' list.....25¢@10¢  
Russell Jennings.....25¢@10¢  
L'Hommedieu Car Bits.....10¢  
Mayhew's Countersink Bits.....25¢  
Pugh's Black.....25¢  
Pugh's Jennings Pattern.....35¢  
Snell's Auger Bits.....60¢  
Snell's Bell Hangers Bits.....60¢  
Snell's Car Bits, 12-in. twist.....60¢  
Snell's King Auger Bits.....50¢  
Wright's Jennings Bits.....60%

**Bit Stock Drills—**  
See Drills, Twist.

**Expansive Bits—**

Clark's Pattern, No. 1, ½ doz. 12¢; No. 2, 18¢  
Ford's, Clark's Pattern.....60¢@10¢  
C. E. Jennings & Co., Steer's Pat. 25¢  
Lavigne Pat., small size, 18¢; large size, 25¢  
Swan's.....60%

**Gimlet Bits—**Per gro.

Common Dble. Cut.....\$3.00@3.25

German Pattern, Nos. 1 to 10, \$1.75; 11 to 13, \$5.75

**Hollow Augers—**

Bonney Pat., per doz. \$6.50@7.00

Ames.....25¢@10¢

Universal.....20%

**Ship Augers and Bits—**

Ship Augers.....40¢@10¢

Ford's.....33½¢

C. E. Jennings & Co.:  
L'Hommedieu's.....6¢  
Watrous.....33½¢@7½¢  
Snell's.....40%

**Awl Hatts—**See Handles, Mechanics' Tool.

**Awls—**

Brad Awls:

Handled.....gro. \$2.75@3.00

Unhanded, Shldered.....gro. \$3.00@3.25

Unhanded, Patent.....gro. \$3.00@3.25

**Scratch Awls—**

Handled, Com.....gro. \$3.50@4.00

Handled, Socket.....gro. \$1.50@1.80

**Awl and Tool Sets—**See Sets, Awl and Tool.

**Axes—**

Single Bit, base weights: Per doz.

First Quality.....\$1.75@1.50

Second Quality.....\$1.25@1.50

**Double Bit, base weights:**  
First Quality.....\$7.00@7.50  
Second Quality.....\$6.50@6.75

**Axle Grease—**See Grease, Axle

**Axles—**Iron or Steel

Concord, Loose Collar.....4½¢@5¢

Concord, Solid Collar.....4½¢@5½¢

No. 1 Common, Loose.....3½¢@4½¢

No. 2 Solid Collar.....4½¢@5¢

Half Patent.....4½¢@5¢

Nos. 7, 8, 11 and 12.....65¢@65¢@10%

Nos. 13 to 14.....65¢@65¢@10%

Nos. 15 to 18.....70¢@70¢@10%

Nos. 19 to 22.....70¢@70¢@10%

**Boxes, Axle—**

Common and Concord, not turned lb., 5¢@6¢

Common and Concord, turned lb., 6¢@7¢

Half Patent.....lb., 9½¢@10¢

**Bait—**Fishing—

Hendryx:

A Bait.....20%

B Bait.....25%

Competitor Bait.....20¢@45¢

**Balances—**Sash—

Caldwell new list.....50%

Pullman.....50¢@10¢@60%

**Spring—**

Spring Balances.....50¢@10¢@60%

Chatillon's:

Light Spg. Balances.....50¢@50¢@10%

Straight Balances.....40¢@40¢@10%

Circular Balances.....50¢@10%

Large Dial.....30%

**Barb Wire—**See Wire, Barb.

**Bars—**Crow—

Steel Crowbars, 10 to 40 lb. per lb., @2½¢@3½¢

No. 10 Ideal, Nickel Plate.....gro. \$3.50

**Beams, Scale—**

Scale Beams.....40%

Chatillon's No. 1.....30%

Chatillon's No. 2.....40%

**Beaters, Carpet—**

Holt-Lyon Co.:

No. 12 Wire Coppered ½ doz. \$0.80;

Tinned.....\$0.85

No. 11 Wire Coppered ½ doz. \$1.15;

Tinned.....\$1.20

No. 10 Wire Tinned.....½ doz. \$1.50

**Beaters, Egg—**

Holt-Lyon Co.:

Holt, per doz., No. 5, Jap'd, \$0.80;

No. A, Jap'd, \$1.15; No. B, Jap'd, \$1.85; No. 6, Jap'd, \$1.65;

Lyon, Jap'd, per doz., No. 2, \$1.35.

Taplin Mfg. Co.:

Improved Dover, per gro., No. 60, \$6.00; No. 75, \$6.50; No. 100, \$7.00; No. 102, Tin'd, \$8.50; No. 150, Hotel, \$15.00; No. 152, Hotel Tin'd, \$17.00; No. 200, Tumbler, \$8.50; No. 202, Tumbler Tin'd, \$9.50; No. 300, Mammoth, per doz., \$25.00.

Turner & Seymour Mfg. Co.:

T. & S. Dover.....\$6.50

**Bellows—**

Blacksmith, Standard List.

Split Leather.....60¢@10¢@65%

Grain Leather.....50¢@50¢@10%

**Hand—**

Inch. 6 7 8 9 10

Doz. \$5.00 5.50 6.00 6.50 7.50

**Molders—**

Inch. 10 12 14 16

Doz. \$7.50 9.00 12.00 15.00

**Bells—**Cow—

Ordinary Goods.....75¢@5¢@10¢@5%

High grade.....70¢@10¢@75%

Jersey.....75¢@10%

Texas Star.....50%

**Door—**

Home, R. & E. Mfg. Co.'s.....55¢@10%

**Hand—**

Polished, Brass.....50¢@10¢@60%

White Metal.....50¢@10¢@50¢@45%

Nickel Plated.....50¢@5%

Rivets.....50¢@5%

Cone's Globe Hand Bell.....3½¢@35%

## Miscellaneous—

Farm Bells.....lb., 2¼¢@2

**Cages, Bird—**

Hendryx Brass: Series 3000, 5000,  
1100, net list; 1200, 15%; 200, 300,  
900  
Hendryx Bronze: Series 700, 800, 30%  
Hendryx Enameled.....35%

**Calipers—See Compasses.****Calks, Toe and Heel—**

Blunt, 1 prong, per lb., 4 1/4 @ 4 1/4¢  
Sharp, 1 prong, per lb., 4 1/4 @ 4 1/4¢  
Burke's, Blunt 4 @ 1/4¢; Sharp, 4 @ 1/4¢  
Lautier, Blunt, 4 @ 1/4¢; Sharp, 4 @ 1/4¢  
Perkins, Blunt, 4 @ 1/4¢; Sharp, 4 @ 1/4¢

**Can Openers—**

See Openers, Can.

**Caps, Percussion—**

Eley's E. B. .... 50¢ @ 55¢  
G. D. .... per M 34¢ @ 35¢  
P. L. .... per M 40¢ @ 42¢  
G. E. .... per M 45¢ @ 50¢  
Musket .... per M 60¢ @ 65¢

**Primers—**

Berdan Primers, \$2 per M. 20¢ @ 25¢  
Primer Shells and Bullets. 15¢ @ 10¢  
All other primers per M. \$1.52 @ \$1.60

**Carpet Stretchers—**

See Stretchers, Carpet.

**Cartridges—**

**Blank Cartridges:**  
32 C. F., \$5.50 ..... 10¢ @ 5¢  
38 C. F., \$7.00 ..... 10¢ @ 5¢  
22 cal. Rim, \$1.50 ..... 10¢ @ 5¢  
32 cal. Rim, \$2.75 ..... 10¢ @ 5¢  
B. B. Caps, Con. Ball, Snyd. \$1.90  
B. B. Caps, Round Ball ..... \$1.49  
Central Fire ..... 25¢  
Target and Sporting Rifle. 15¢ @ 5¢  
Primed Shells and Bullets. 15¢ @ 10¢  
Rim Fire, Sporting ..... 50¢  
Rim Fire, Military ..... 15¢ @ 5¢

**Casters—**

Bed ..... 65¢ @ 10¢  
Plate ..... 60¢ @ 5¢  
Philadelphia ..... 70¢ @ 10¢  
Acme, Ball Bearing ..... 30¢  
Gem (Roller Bearing) ..... 70¢ @ 10¢  
Steel Gem ..... 20¢  
Standard Ball Bearing ..... 45¢  
Yale (Double Wheel) low list. 40¢ @ 10¢

**Cattle Leaders—**

See Leaders, Cattle.

**Chain, Proof Coil—**

**American Coil, Straight Link:**  
3-16 3/4 5-16 7-16 1/2 9-16  
\$8.65 6.95 4.90 4.25 4.15 4.10  
5/8 3/4 7/8 to 1 1/2 to 1 1/4 inch  
\$4.05 3.95 3.90 4.00  
In cash lots, deduct 25¢.  
German Coil ..... 60¢ @ 60¢ @ 5¢  
German Pattern Coil:  
6-0 to 1 ..... 70¢ @ 70¢ @ 10¢  
2 and 3 ..... 60¢ @ 60¢ @ 10¢ @ 5¢  
4, 5 and 6 ..... 50¢ @ 10¢ @ 50¢ @ 10¢ @ 5¢

**Halter—**

Halter Chains ..... 60¢ @ 60¢ @ 5¢  
German Pattern Halter Chains  
list July 1, '97 ..... 60¢ @ 10¢ @ 5¢  
Covert Mfg. Co.  
Halter ..... 35¢ @ 5¢

**Cow Ties—**

See Halters and Ties.

**Trace, Wagon, &c.—**

Traces, Western Standard: 100 pr.  
6 1/2-6-3, Straight, with ring. \$28.00  
6 1/2-6-2, Straight, with ring. \$29.00  
6 1/2-8-2, Straight, with ring. \$32.00  
6 1/2-10-2, Strght, with ring. \$37.00  
NOTE—Add 2c per pair for Hooks  
Tied Traces, add per pair for Nos. 2  
and 3, 2c; No. 1, 3c; No. 4, 4c to price of  
Straight Link.

Eastern Standard Traces, Wag-  
on Chain, &c. 60¢ @ 10¢ @ 60¢ @ 10¢ @ 5¢

**Miscellaneous—**

Jack Chain, list July 10, '03:  
Iron ..... 60¢ @ 10¢  
Brass ..... 60¢  
Safety and Plumbers' Chain  
60¢ @ 10¢  
Gal. Pump Chain ..... 1/2 lb. 4 1/2 @ 5¢  
Covert Mfg. Co.:  
Broadcast, Halter, Heel, Rein, Stal-  
lion ..... 40¢  
Oneida Community:  
American Halter, Dog and Kennel  
Chains ..... 35¢ @ 2¢ @ 40¢  
Niagara Dog Leads and Kennel  
Chains ..... 45¢ @ 50¢ @ 5¢  
Wire Goods Co.:  
Dog Chain ..... 70¢  
Universal Dbl.-Jointed Chain ..... 50¢

**Chain and Ribbon, Sash—**

Oneida Community:  
Steel Chain ..... 60¢  
Fullman:  
Bronze Chain, 60%; Steel Chain  
60¢ @ 10¢  
Sash Chain Attachments, per set. 8¢  
Aluminum Sash Ribbon, per 100  
ft. \$1.25 @ \$3.00  
Sash Ribbon Attachments, per set. 8¢

**Chalk—(From Jobbers.)**

Carpenters' Blue ..... gro., 50¢ @ 55¢  
Carpenters' Red ..... gro., 45¢ @ 50¢  
Carpenters' White ..... gro., 40¢ @ 45¢

**Checks, Door—**

Bardsley's ..... 45¢  
Fullman, per gro. .... \$5.00  
Russwin ..... 39¢ @ 6¢

**Chests, Tool—**

American Tool Chest Co.:  
Boys' Chests, with Tools ..... 50¢  
Youths' Chests, with Tools ..... 25¢  
Gentlemen's Chests, with Tools ..... 25¢  
Farmers', Carpenters', etc., Chests,  
with Tools ..... 20¢  
Machinists' and Pipe Fitters'  
Chests, Empty ..... 45¢  
Tool Cabinets ..... 45¢  
C. E. Jennings & Co.'s Machinists'  
Tool Chests ..... 7 1/2¢

**Chisels—**

Socket Framing and Firmer  
Standard List ..... 80¢ @ 7¢  
C. E. Jennings & Co.:  
Socket Firmer No. 10 ..... 25¢ @ 7 1/2¢  
Socket Framing No. 15 ..... 25¢ @ 7 1/2¢  
Swan's ..... 66¢ @ 70¢  
L. & I. J. White Co. 30¢ @ 30¢ @ 5¢

**Tanged—**

Tanged Firmers ..... 30¢ @ 35¢  
Buck Bros. .... 30¢  
L. E. Jennings & Co. Nos. 191, 181 ..... 25¢  
L. & I. J. White Co. 25¢ @ 5¢

**Cold—**

Cold Chisels, good quality. 13¢ @ 15¢  
Cold Chisels, fair quality. 11¢ @ 12¢  
Cold Chisels, ordinary. 9¢ @ 10¢

**Chucks—**

Almond Drill Chucks ..... 35¢  
Almond Turret Six-Tool Chuck ..... 40¢  
Beach Pat., each \$8.00 ..... 35¢ @ 5¢  
Empire ..... 25¢  
Blacksmiths'  
Jacobs' Drill Chucks ..... 35¢  
Pratt's Positive Drive ..... 25¢  
Skinner Patent Chucks:  
Independent Lathe Chucks ..... 35¢  
Universal, Reversible Jaws ..... 35¢  
Combination, Reversible Jaws ..... 35¢  
Drill Chucks, New Model, 25¢  
Standard, 45¢; Skinner Pat. 40¢  
25%; Positive Drive ..... 40¢  
Planer Chucks ..... 20¢  
Face Plate Jaws ..... 35¢  
Standard Tool Co.:  
Improved Drill Chuck ..... 45¢  
Union Mfg. Co.:  
Combination, Nos. 1, 2, 3, 4, 5, 6,  
7, 8 and 17, 40¢; No. 21 ..... 35¢  
Scroll Combination, Nos. 83 and  
84 ..... 30¢  
Geared Scroll, Nos. 33, 34 and 35 ..... 35¢  
Independent Iron, Nos. 18 and 318 ..... 35¢  
Independent Steel, No. 61 ..... 35¢  
Union Drill, Nos. 600, 90, 100, 101,  
102, 103, 104 ..... 35¢  
Union Czar Drill ..... 25¢  
Universal, 11, 12, 16, 17, 13, 14, 15, 40¢  
Universal, No. 42 ..... 35¢  
Iron Face Plate Jaws, Nos. 28, 30,  
48 and 50 ..... 35¢  
Steel Face Plate Jaws, Nos. 70 and  
72 ..... 30¢  
Westcott Patent Chucks:  
Lathe Chucks ..... 50¢  
Little Giant Auxiliary Drill ..... 50¢  
Little Giant Double Drill ..... 50¢  
Little Giant Drill, Improved ..... 50¢  
Oneida Drill ..... 50¢  
Scroll Combination Lathe ..... 50¢  
Whitaker Mfg. Co.:  
National Drill ..... 25¢

**Clamps—**

Adjustable, Hammers' ..... 20¢ @ 20¢ @ 5¢  
Carriage Makers', P. S. & W.  
Co. ..... 50¢ @ 10¢  
Realy, Parallel ..... 35¢ @ 10¢  
Myers' Hay Rack ..... 45¢  
Lineman's Swedish Neverturn ..... 65¢  
Wood Workers, Hammers' ..... 40¢ @ 10¢  
Saw Clamps, see Vices, Saw Filers'.

**Cleaners, Drain—**

Iwan's, Champion, Adjustable ..... 50¢  
Iwan's, Champion, Stationary ..... 40¢

**Sidewalk—**

Star Shank, All Steel, 1/2 doz. \$1.05 net  
Star Shank, All Steel, 1/2 doz. \$3.24 net  
W. & C. Shank, All Steel, 1/2 doz.,  
7 1/2 in., \$3.00; 8 in., \$3.25.

**Cleavers, Butchers'—**

Foster Bros. .... 30¢  
Fayette R. Plumb ..... 30¢  
L. & I. J. White Co. .... 30¢

**Clippers, Horse and****Sheep—**

Chicago Flexible Shaft Company:  
1902 Chicago Horse, each. \$10.75  
20th Century Horse, each. \$5.00  
Lightning Belt Horse, each. \$15.00  
Chicago Belt Horse, each. \$20.00  
Stewart's Enclosed Gear  
Horse, each ..... \$6.75  
Stewart's Patent Sheep Shear-  
ing Machine, each ..... \$12.75  
Stewart Enclosed Gear Shear-  
ing Machin, No. 8, each. \$9.75

**Clips, Axle—**

Regular Styles, list July 1, '05,  
80¢ @ 40¢ @ 10¢

**Cloth and Netting, Wire****—See Wire, &c.****Cocks, Brass—**

Hardware list:  
Plain Bibbs, Globe, Kerosene,  
Racking, Liquor, Bottling,  
&c. .... 70¢ @ 7¢  
Compression Bibbs. 60¢ @ 10¢ @ 7¢

**Coffee Mills—**

See Mills, Coffee.

**Collars, Dog—**

Nickel Chain, Walter B. Stevens &  
Son's list. .... 40¢  
Leather, Walter B. Stevens & Son's  
list ..... 40¢

**Compasses, Dividers, &c.**

Ordinary Goods ..... 70¢ @ 10¢ @ 75¢  
Wm. Schollhorn Co.:  
Excelsior Dividers ..... 60¢  
Lodi Dividers ..... 70¢ @ 10¢

**Conductor Pipe,—**

L. C. L. to Dealers:

**Galv. Charcoal Copper.**  
**Steel. Iron. 1 1/2, 1 3/4, 2 1/2 oz.**  
**Eastern:**  
70% 50¢ @ 17 1/2¢ 45¢  
Central: 70% 55¢ 45¢  
Western and Southern:  
65¢ @ 10¢ 50¢ @ 2 1/2¢ 40¢ @ 5¢  
So. Western  
65¢ @ 5¢ 45¢ @ 5¢ 40¢ @ 2 1/2¢  
Terms, 60 days; 2 1/2% cash 10 days. Fac-  
tory shipments generally delivered.  
See also Eave Troughs.

**Coolers, Water—**

L. & G. Mfg. Co.:  
Gal. .... 2 3 4 6 8  
Galvanized, ea. \$1.85 \$2.00 \$2.25 \$2.50 \$3.90  
Galvanized, Lined, side handles,  
Gal. .... 3 4 6 8  
Each ..... \$1.95 \$2.15 \$2.40 \$3.30 \$4.15  
White Enameled ..... 10¢  
Agate Lined ..... 10¢

**Coopers' Tools—**

See Tools, Coopers'.

**Coppers' Soldering—**

Soldering Coppers, 3 lbs. to pair  
and heavier, 22¢ @ 25¢; lighter  
than 3 lb. to pair. .... 24¢ @ 27¢

**Cord—Sash—**

Braided, Drab ..... 1b. 35¢  
Braided, White, Com., Nos. 8  
to 12, 23¢; No. 7, 23 1/2¢; No. 6,  
24 1/2¢. In lots of 12 doz. or  
over, 1 cent less per pound.  
Cable Laid Italian, lb., No. 18 ..... 37¢  
Italian, lb., A. No. 18, 25¢; B. 22¢  
Common India ..... lb., 11¢ @ 11 1/2¢  
Cotton Sash Cord, Twisted, 18 @ 20¢  
Patent Russia ..... lb., 20¢  
Cable Laid Russia ..... lb., 21¢  
India Hemp, Br'd'd ..... lb., 21¢  
India Hemp, Twisted, lb. 13 @ 14¢  
Patent India, Twisted, lb. .... 17¢  
Pearl Braided, cotton, No. 6, 1/2 lb.,  
27 1/2¢; No. 7, 26 1/2¢; Nos. 8 to 12, 26¢  
Edystone, Braided, Nos. 8 to 12,  
26¢; 7, 26 1/2¢; 6, 27 1/2¢.  
Harmony Cable Laid Italian, Nos. 7  
to 10 ..... 10¢ @ 23¢  
Philman:  
Wire Sash Cord ..... 10¢  
Sash Cord Attachments, per doz. 10¢  
Samson, Nos. 8 to 12:  
Braided, 1/2 lb., Drab Cotton,  
55¢; Italian Hemp, 40¢ @ 45¢  
50¢; Linen, 65¢; White Cot-  
ton, 50¢; Spon. Cord ..... 50¢  
Massachusetts, White, 1/2 lb. 10¢  
Massachusetts, Drab, 1/2 lb. 45¢  
Phoenix, White, Nos. 8 to 12, 7¢;  
Silver Lake, per lb.:  
A. Drab, 45¢; A. White, 40¢;  
B. Drab, 40¢; B. White, 35¢;  
Italian Hemp, 40¢; Linen, 57 1/2¢  
See also Chain and Ribbon.

**Wire, Picture—**

List July 10, 1906 ..... 90¢ @ 7¢  
Hendryx Standard Wire Picture Cord,  
old list. 85¢ @ 10¢  
Turner & Stanton Co. Wire Picture  
Cord ..... 85¢ @ 10¢

**Cradles—**

Grain ..... 40¢ @ 18 1/2¢

**Crayons—**

White Round Crayons, Cases, 100  
gro., \$6.50 @ \$7.50 at factory, but  
lower prices made by jobbers  
Zelnicke's Lumber. 1/2 gro.  
White and Purple, Indelible ..... \$7.50  
Blue, Red, Green, Yellow and  
Terra Cotta, \$6.50; Black ..... \$4.50  
Giant Lumber, 5/4 in. x 15-16 in.  
round, all colors, \$12.00; Indeli-  
bles ..... \$14.00; Black ..... \$10.00  
Genuine Soapstone, Metal Workers',  
5 in. x 1/4 in. Round, \$2.50; 5 in. x  
1/4 in. Square, \$1.75; 5 x 1/2 x 3-16,  
\$2.50; 5 x 1/4 x 3-16 ..... \$3.00

**Crooks, Shepherds'—**

Fort Madison, per doz., Heavy, \$5.50;  
Light ..... \$5.00

**Crow Bars—See Bars, Crow.****Cultivators—**

Victor Garden ..... 50¢

**Cutlery, Table—**

International Silver Company:  
No. 12 M'd'm Knives, 1847, 1/2 doz. \$3.50  
Star, Eagle, Rogers & Hamilton  
and Anchor ..... 1/2 doz. \$3.00  
Wm. Rogers & Son ..... 1/2 doz. \$2.50

**Cutters—Glass—**

H. H. Mayhew Co. .... 40¢  
Red Devil ..... 60¢  
B. Mfg. Co. .... 40¢  
Woodward ..... 50¢

**Meat and Food—**

American ..... 30¢  
Nos. .... 401 402 403 404 405 406 407  
Each ..... \$5 \$7 \$10 \$12 \$25 \$50 \$60  
Enterprise:  
Nos. .... 5 10 12 22 32  
Each ..... \$2 \$3 \$2.75 \$1.50 \$6 25¢ @ 7 1/2¢  
No. 222, \$1.50 ..... 40¢ @ 7 1/2¢  
P. S. & W. Co.:  
Dixon's ..... 1/2 doz. 33 1/2¢  
Nos. .... 1 2 3 4  
Ideal ..... \$14.00 \$17.00 \$19.00 \$30.00  
Hales ..... 40¢ @ 10¢ @ 5¢  
Little Giant ..... 1/2 doz. 40¢ @ 50¢  
Nos. .... 305 310 312 320  
\$35.00 \$48.00 \$44.00 \$72.00 \$98.00  
New Triumph No. 605, 1/2 doz. \$24.00,  
40¢ @ 10¢  
Russwin Food, No. 1, \$24.00; No. 2,  
\$27.00 ..... 45¢ @ 10¢ @ 10¢  
Enterprise Beef Shavers ..... 25¢ @ 30¢

**Slaw and Kraut—**

Henry Disston & Sons:  
Slaw and Kraut Cutters ..... 35¢  
Corn Graters ..... 30¢  
J. M. Mast Mfg. Co.:  
Slaw Cutters, 1 Knife ..... 1/2 doz. \$3.00  
Combined Slaw Cutter and Corn  
Grater ..... 1/2 doz. \$1.00

**Tobacco—**

All Iron, Cheap. 1 doz. \$4.25 @ \$4.50  
Enterprise ..... 25¢ @ 30¢  
National, 1/2 doz., No. 1, \$21; No. 2,  
\$18 ..... 40¢

**Diggers, Post Hole, &c.—**

Disston's:  
Rapid, 1/2 doz. \$24.00 ..... 25¢  
Samson, 1/2 doz. \$34.00 ..... 25¢  
Iwan's Improved Post Hole Auger, 40¢  
Vaughan Pattern Post Hole Augers,  
1/2 doz. \$7.00  
Perfection Post Hole Diggers, 1/2  
doz. \$8.75  
Split Handle Post Hole Diggers,  
1/2 doz. \$7.75  
Hercules Pattern, 1/2 doz. .... \$10.00  
Kohler's, 1/2 doz., Universal, \$15.00;  
Little Giant, \$12.00; Hercules,  
\$10.00; Invincible, \$9.00; Rival,  
\$8.50; Pioneer, \$7.50 ..... \$7.50  
Never-Break Post Hole Diggers, 1/2  
doz., \$24.00 ..... 60¢

**Dividers—See Compasses.****Drawing Knives—**

See Knives, Drawing.

**Dressers, Emery Wheel—**

Sterling Emery Wheel Dressers ..... 35¢  
Sterling Wheel Dresser Cutters ..... 35¢

**Drills and Drill Stocks—**

Blacksmiths' Common Drilling  
Machines ..... \$1.50 @ \$1.75  
Breast, Millers Falls ..... 15¢ @ 10¢  
Breast, P. S. & W. .... 33 1/2¢  
Goodell Automatic Drills, 50¢ @ 60¢ @ 10¢  
Millers Falls Automatic Drills, 33 1/2¢ @ 10¢  
Ratchet, Curtis & Curtis ..... 25¢  
Ratchet, Parker's ..... 40¢  
Ratchet, Weston's ..... 40¢  
Ratchet, Weston's, Style H Im-  
proved ..... 40¢  
Ratchet, No. 012 ..... 40¢  
Ratchet, Celebrated ..... 40¢  
Ratchet, Whitney's, P. S. & W. .... 50¢ @ 5¢  
Whitney's Hand Drill, No. 1, \$10.00;  
Adjustable, No. 10, \$12.00 ..... 33 1/2¢

**Twist Drills—**

Bit Stock ..... 70¢ @ 70¢ @ 5¢  
Taper and Straight Shank ..... 60¢ @ 10¢ @ 70¢

**Drivers, Screw—**

Screw Driver Bits, per doz. 45¢ @ 50¢  
Baley's Screw Holder and Driver, 1/2  
doz., 2 1/2-in. 15¢; 4-in., \$7.50; 6-in.,  
\$9.00 ..... 50¢  
Buck Bros.' Screw Driver Bits ..... 30¢  
Champion ..... 50¢  
Disston's ..... 70¢  
Fray's Hol. H'dle Sets, No. 3, \$12.50 ..... 40¢ @ 10¢  
Ford's Brace Screw Drivers ..... 40¢ @ 10¢  
Gay's Double Action Ratchet ..... 35¢  
Goodell's Auto ..... 65¢ @ 65¢ @ 10¢  
Mayhew's Black Handle ..... 40¢  
Mayhew's Monarch ..... 40¢  
Millers Falls, Nos. 20 and 21 ..... 25¢ @ 10¢  
Millers Falls, Nos. 11, 12, 14, 42, 15¢ @ 10¢  
Smith & Hemenway Co. Never-  
turn, 65%; Elmora, 60%; Star,  
30¢ @ 10¢  
Swan's:  
Nos. 7565 to 7568, 50%; No. 7540,  
40¢ @ 10¢

**Eave Trough, Galvanized—**

Territory. L. C. L. Galvanized  
Galv. Charcoal Copper.  
Steel. Iron. 1 1/2, 1 3/4, 2 1/2 oz.

**Eastern:**  
75¢ @ 5¢ 60¢ @ 10¢ 45¢  
**Central:**  
75¢ @ 10¢ 65¢ 45¢  
**Western and Southern:**  
75¢ 60¢ @ 5¢ 40¢ @ 5¢  
**So. Western:**  
75¢ 55¢ @ 7 1/2¢ 42 1/2¢

Terms, —2% for cash. Factory ship-  
ments generally delivered.

Note.—Lower prices are made in  
some sections.

See also Conductor Pipe and Elbows.

**Elbows and Shoes—**

Factory shipments, all territories:

Galv. Steel and Galv. C.  
Standard Gauge ..... 85¢ @ 85¢ @ 10¢  
No. 25 ..... 50¢  
No. 21 ..... 25¢  
No. 22 ..... 10¢  
Copper ..... 60¢ @ 10¢

**Elbows, Stove Pipe—**

Edwards, Standard Blue ..... 40¢ @ 10¢ @ 10¢  
Edwards, Royal Blue ..... 40¢ @ 10¢ @ 10¢  
Reeves, Dover, one piece ..... 40¢ @ 10¢

**Emery, Turkish—**

4 to 5 1/2 to  
48: 220: Flour.  
Kegs ..... lb. 5¢ 5 1/4¢ 5 1/2¢  
1/2 Kegs ..... lb. 5 1/4¢ 5 1/4¢ 5 1/4¢  
1/4 Kegs ..... lb. 5 1/4¢ 6¢ 6¢  
10-lb. cans,  
10 in. case ..... 5 1/4¢ 7¢ 6¢  
10-lb. cans, less  
than 10 ..... 10¢ 10¢ 8¢  
Less quantity, 10¢ 10¢ 8¢  
NOTE.—In lots 1 to 3 tons a discount  
of 10% is given.

**Extractors, Lemon Juice**

—See Squeezers, Lemon.



**Fasteners, Blind—**

Zimmerman's ..... 50&10%  
Walling's ..... 40&10%  
Upson's Patent ..... 40%

**Cord and Weight—**

Ives and Titan ..... 33%  
Corrugated—  
Acme Corrugated Fasteners ..... 70%

**Faucets—**

Cork Lined ..... 50&10@60%  
Metallic Key, Leather Lined, 60&10@70%

Red Cedar ..... 40&5@40&10&5%  
Petroleum ..... 70&10@75%

B. & L. B. Co.:  
Metal Key ..... 60&10%

Star ..... 60%  
West Lock ..... 50&10%

John Sommer's Peerless Tin Key ..... 40%  
John Sommer's Boss Tin Key ..... 50%

John Sommer's Victor Mtl. Key ..... 50&10%  
John Sommer's Duplex Metal Key ..... 60%

John Sommer's Diamond Lock ..... 40&10%  
John Sommer's I. X. L. Cork Lined ..... 50%

John Sommer's Reliable Cork Lined ..... 60&10%  
John Sommer's Chicago Cork Lined ..... 60%

John Sommer's O. K. Cork Lined ..... 60%  
John Sommer's No Brand, Cedar ..... 40%

John Sommer's Perfection, Cedar ..... 40%  
Self Measuring  
Enterprise, # doz. \$36.00 ..... 40&10%

Lane's, # doz. \$36.00 ..... 40&10%  
National Measuring, # doz. \$36.00 ..... 40&10%

**Felloe Plates—**

See Plates, Felloe.  
**Files— Domestic—**  
List Nov. 1, 1899.

Best Brands ..... 70&10@75&10%  
Standard Brands ..... 75&10@80%

Lower Grade ..... 75&10@80&10%  
**Imported—**  
Stubs' Tapers, Stubs' List, July

24, '97 ..... 33 1-3@40%

**Fixtures, Fire Door—**

Allith Underwriters' Approved ..... 50%  
Richards Mfg. Co.:  
Universal, No. 103; Special, No. 104 ..... 33.75

Fusible Links, No. 96 ..... 80%  
Expansion Bolts, No. 107 ..... 60&10%

**Grindstone—**

Net Prices:  
Inch ..... 15 17 19 \$1

Per doz. .... \$3.60 3.85 4.15 4.65  
P. S. & W. Co. .... 25%

Reading Hardware Co. .... 60%

**Fodder Squeezers—**

See Compressors.

**Forks—**

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ezy Potato ..... 60&10%

Victor, Hay ..... 60&15&24%

Victor, Manure ..... 60%

Victor, Header ..... 60%

Champion, Hay ..... 60%

Champion, Header ..... 60%

Champion, Manure ..... 60&15&24%

Columbia, Hay ..... 60&20%

Columbia, Manure ..... 70%

Columbia, Spading ..... 10&12%

Hawkeye Wood Barley ..... 40%

W. & C. Potato Digger ..... 60&10%

Acme Hay ..... 60&20%

Acme Manure, 4 time ..... 60&10&5%

Dakota Header ..... 60&20%

Jackson Steel Barley ..... 60&20%

Kansas Header ..... 60%

W. & C. Favorite Wood Barley ..... 40%

Plated.—See Spoons.

**Frames— Wood Saw—**

White, S'g't Bar, per doz. 75@80¢

Red, S'g't Bar, per doz. \$1.00@1.25

Red, Dbl. Brace, per doz. \$1.40@1.60

**Freezers, Ice Cream—**

Qt. .... 1 2 3 4 6

Each ..... \$1.25 \$1.60 \$1.90 \$2.20 \$2.80

**Fruit and Jelly Presses—**

See Presses, Fruit and Jelly.

**Fry Pans—See Pans, Fry.****Fuse— Per 1000 Feet.**

Hemp ..... 22.75

Cotton ..... 3.20

Waterproof Sgl. Taped. 3.65

Waterproof Dbl. Taped. 4.40

Waterproof Tpl. Taped. 5.15

**Gates, Molasses and Oil—**

Stebbins' Pattern ..... 80@80&5%

**Gauges—**

Marking, Mortise, &c. 50@50&10%

Chapin-Stephens Co.:  
Marking, Mortise, &c. 50&50&10%

Diston's Marking, Mortise, &c. 67&4%

Wire, Brown & Sharpe's ..... 33%  
Wire, Morse's ..... 25%

Wire, P. S. & W. Co. .... 33%  
**Glimlets— Single Cut—**  
Numbered assort-

ments, per gross

Nail, Metal, No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Spike, Metal, No. 1, \$1.00; 2, \$1.30

Nail, Wood Handled, No. 1, \$2.50; 2, \$2.60

Spike, Wood Handled, No. 1, \$1.30; 2, \$1.60

**Glass, American Window**

See Trade Report.

**Glasses, Level—**

Chapin-Stephens Co. .... 65@65&10%

**Glue, Liquid Fish—**

Bottles or Cans, with Brush ..... 25&10@50%

Elwell's ..... 40%

**Grease, Axle—**

Common Grade ..... gro. \$6.00 @ 6.50

Dixon's Everlasting, 10-lb pails, ea. 85¢; in boxes, # doz., 1 lb., \$1.20;

2 lb. ..... \$2.00  
Helmet Hard Oil ..... 25%

**Griddles, Soapstone—**

Pike Mfg. Co. .... 33%@33%&10%

**Grinders—**

Royal Mfg. Co.:  
Alundum Grinding Machines, each,

Nos. 01, \$1.75; 1A, \$2.50; 10, \$5.00

Alundum Sickle Grinders, each, Nos. 20, \$5.00; 20A, \$6.00; 20B, \$6.50

Alundum Disc Grinders, each, \$2.50 ..... 30%

**Grindstones—**

Pike Mfg. Co.:  
Improved Family Grindstones, #

inch, # doz., \$2.00 ..... 33%  
Richards Mfg. Co. Eli and Cycle

Ball Bearing, mounted ..... 40%

**Grips, Nipple—**

Perfect Nipple Grips ..... 40&10&3%

**Halters and Ties—**

Cow Ties ..... 60&5@60&10%

Covert Mfg. Co.:  
Web ..... 30&2%

Jute Rope ..... 35%

Sisal Rope ..... 20%

Cotton Rope ..... 45%

Hemp Rope ..... 45%

Onesida Community:  
Am. Coil and Halters ..... 40&10&5%

Am. Cow Ties ..... 45&60%

Niagara Coil and Halters ..... 45&50&5%

Niagara Cow Ties ..... 45&50&10&5%

**Hammers—****Handled Hammers—**

Heller's Machinists' ..... 55&10&55&10&5%

Heller's Farriers' ..... 40&50&10&5%

Peck, Stow & Wilcox Co.:  
Crucible Steel ..... 50%

Farriers' ..... 40&10&5%

Riveting ..... 50%

Machinists', revised list ..... 66%&5%

Blacksmiths' ..... 50&5%

Fayette R. Plumb:  
A. E. Nail ..... 40&2%&40&12%&4%

Eng. and B. S. Hand ..... 50&10&50&5%

Machinists' Hammers ..... 60&60&10%

Rivet and Timmers ..... 40&7%&40&12%&5%

**Heavy Hammers and Sledges—**

Under 3 lb., per lb., 50¢ ..... 80&10%

3 to 5 lb., per lb., 40¢ ..... 80&10%

Over 5 lb., per lb., 30¢ ..... 80&10%

Over 5 lb., per lb., 30¢ ..... 80&10&10%

**Handles—****Agricultural Tool Handles**

Axe, Pick, &c. .... 60&10@60&10&5%

Hoe, Rake, &c. .... 40%

Fork, Shovel, Spade, &c.:  
Long Handles ..... 40%

D Handles ..... 40%

**Cross-Cut Saw Handles—**

D. & H. Scovil.....27 1/2%  
Am. Fork & Hoe Co. (Scovil Pat-  
tern).....60%

**Handled—**

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1900, or selling at net prices.

Cronk's Weeding, No. 1, \$2.00; No. 2, \$2.50  
Star Double Bit.....\$3.20  
Ft. Madison Cotton Hoe.....70¢@10¢  
Ft. Madison Cotton Cultivator Hoe,  
# doz.....70¢@10¢  
Ft. Madison Mattock Hoes:  
Regular Weight.....# doz. 40¢@5¢  
Junior Size.....# doz. \$4.00  
Ft. Madison Sprouting Hoe, # doz.,  
60¢@10¢  
Ft. Madison Dixie Tobacco Hoe.....  
75¢@10¢  
Kretzinger's Cut Easy.....70¢@10¢  
Warren Hoe.....70¢@10¢  
W. & C. 1-in. Hoe.....75¢@2¢  
B. B., 6 in., Cultivator Hoe.....\$3.40  
B. B., 6 in., Hoe.....\$3.50  
V-me Weeding.....# doz., net, \$4.35  
W. & C. Lining Shuffler Hoe, # doz., \$5.25

**Hoisting Apparatus—**  
See Machines, Hoisting.**Holders—Bit—**

Angular, # doz. \$24.00.....45¢@10¢

**Door—**

Bardsley's, Iron, 40%; Brass and  
Bronze.....25¢  
Empire.....50¢  
Pullman.....35¢  
Richards Mfg. Co.: No. 117, Ever-  
ready, 40%; Nos. 118, 119, Sure  
Grip.....50¢  
Superior.....33 1/2%

**File and Tool—**

Nicholson File Holders and File  
Handles.....33¢@40¢

**Fruit Jar—**

Triumph Fruit Jar Holder, # gross,  
\$10.80; # doz.....\$1.25

**Trace and Rein—**

Fernald Double Trace Holder, # doz.  
pairs.....\$1.25  
Dash Rein Holder, # doz. pairs, \$1.25

**Hones—Razor—**

Pike Mfg. Co., Belgian and Swat,  
50%; German.....33 1/2%

**Hooks—Cast Iron—**

Bird Cage, Reading.....40¢  
Clothes Line, Reading List.....40¢  
Coat and Hat, Reading.....45¢@20¢  
Coat and Hat, Wrightsville.....60¢@5¢  
Harness, Reading List.....40¢

**Wire—**

Belt.....80¢  
Wire C. & H. Hooks.....75¢@  
Bradley Metal Clasp Wire, Coat and  
Hat, 70¢@10¢; Ceiling.....70¢@10¢  
Columbian Hdw. Co., Gem.....70¢@5¢  
Parker Wire Goods Co., King, 70¢@10¢  
Wire Goods Co.: Chief, 70%; Crown,  
75%; Cray, 45%; V Brace, 75%;  
Czar Harness, 50¢@10¢

**Wrought Iron—**

Box, 6 in., per doz., \$1.90; 8 in.,  
\$1.25; 10 in., \$2.50.  
Cotton.....# doz. \$1.05@1.25  
Wrought Staples, Hooks, &c.—  
See Wrought Goods

**Miscellaneous—**

Hooks, Bench, See Stops, Bench.  
Rush, Light, doz., \$6.20; Medium,  
\$6.75; Heavy, \$7.65  
Grass, best, all sizes, per doz. \$3.00  
Grass, common grades, all sizes,  
per doz.....\$1.50  
Whiffletree.....lb. 5¢@6¢  
Hooks and Eyes:  
Brass.....60¢@10¢  
Malleable Iron.....70¢@10¢  
Covey Mfg. Co. Gate and Scuttle  
Hooks.....40¢  
Ft. Madison Cut-Easy Corn Hooks,  
# doz. \$3.25 net  
Turner & Stanton Co., Cup and  
Shoulder.....80¢@10¢  
Bench Hooks—See Bench Stops.  
Corn Hooks—See Knives, Corn.

**Horse Nails—**

See Nails, Horse.

**Horseshoes—**

See Shoes, Horses.

**Hose, Rubber—**

Garden Hose, 3/4-inch:  
Competition.....ft. 5¢@6¢  
3 ply Guaranteed.....ft. 8¢@9¢  
4 ply Guaranteed.....ft. 10¢@11¢  
Cotton Garden, 3/4-in., coupled:  
Low Grade.....ft. 8¢@9¢  
Fair Quality.....ft. 10¢@11¢

**Irons—Saw—**

From 4 to 10.....lb. 30¢@3 1/2¢  
B. B. Saw Irons.....lb. 3 1/4¢@3 1/2¢  
Mrs. Potts, cents per set:  
Nos. 50 55 60 65  
Jap'd Tops.....83 80 93 91  
Tin'd Tops.....88 85 98 95  
New England Pressing, lb. 3 1/4¢@4¢

**Bar and Corner—**

Richards Mfg. Co., Bar, 60¢@10¢;  
Corner.....60%

**Pinking—**

Pinking Irons.....# doz. 80¢

**Irons, Soldering**

See Copiers.

**Jacks, Wagon—**  
Covert Mfg. Co.:  
Auto Screw.....30¢@1¢; Steel, 45¢  
Lockport.....50%

Lane's Steel.....30¢@5¢  
Richards' Tiger Steel, No. 1, 30¢@10¢  
Smith & Hemenway Co.'s.....25%

**Ladder—**

Richards Mfg. Co., Ladder Jacks, 50%

**Kettles—**

Brass, Spun, Plain.....20¢@25¢  
Enameled and Cast Iron—See Ware,  
Hollow.

**Knives—**

Butcher, Kitchen, &c.—

Foster Bros' Butcher, &c.....30¢  
Wilkinson Shear & Cutlery Co.....60%

**Corn—**

Columbian Cutlery Co., Wilcut  
Brand Knives and Hooks.....60%  
Wilmington Acme, # doz., \$2.65;  
Dent, \$2.75; Adj. Serrated, \$2.20;  
Serrated, \$2.10; Yankee No. 1, \$1.50;  
Yankee No. 2, \$1.15.

**Drawing—**

Standard List.....80¢@—%  
C. E. Jennings & Co., Nos. 45, 46,  
25¢@7 1/2¢  
Jennings & Griffin, Nos. 41, 42,  
66¢@7 1/2¢  
Swan's.....66¢@10¢  
Watrous.....16¢@  
L. & J. J. White.....20¢@25¢

**Hay and Straw—**

Serrated Edge, per doz. \$3.50@5.75  
Ivan's Sickle Edge.....# doz. \$9.50  
Ivan's Serrated.....# doz. \$10.00

**Miscellaneous—**

Farriers'.....# doz. \$3.00@3.25  
Wostenholm's.....# doz. \$3.00@3.25

**Knobs—**

Base, 2 1/2-inch, Birch, or Maple,  
Rubber Tip.....gro. \$1.25@1.40  
Carriage, Jap., all sizes.....  
gro. 40¢@45¢

Door, Mineral.....# doz. 65¢@70¢  
Door, Por. Jap'd.....# doz. 70¢@75¢  
Door, Por. Nickel.....# doz. \$2.05@2.15  
Bardsley's Wood Door, Shutters, &c. 15%

**Lacing, Leather—**

See Belting, Leather—

**Ladders, Store, &c.—**

Allith Mfg. Co., Reliable.....50%  
Lane's Store.....25%  
Myers' Noiseless Store Ladders.....50%  
Richards Mfg. Co.:  
Improved Noiseless, No. 112.....50%  
Climax Shelf, No. 113.....50%  
Trolley, No. 109.....50%

**Ladies, Melting—**

L. & G. Mfg. Co. (low list).....20%  
P. S. & W.....40¢@10¢  
Reading.....60%

**Lanterns—Tubular—**

Regular, No. 0.....# doz. \$4.35@4.50  
Side Lift, No. 0.....# doz. \$4.60@4.75  
Hinge Globe, No. 0.....# doz. \$4.60@4.75  
Other Styles.....40¢@40¢10¢

**Bull's Eye Police—**

3-inch.....\$4.25@4.50

**Latches—Thumb—**

Roggin's Latches, with screw.....  
doz. 35¢@40¢

**Door—**

Allith Mfg. Co., Reliable and Alle-  
gator, 50%; Reliable Cold Storage, 50%  
Cronk & Carrier Mfg. Co., No. 101,  
# doz. \$2.30  
Richards' Bull Dog, Heavy, No.  
125.....50¢@5¢  
Richards' Trump, No. 127.....\$1.50

**Leaders, Cattle—**

Small.....# doz. 50¢; large, 60¢  
Covert Mfg. Co.:  
Cotton, 45%; Hemp, 45%; Jute, 35%;  
Sisal, 20%.

**Leathers, Pump—**

See Pumps—

**Lifters, Transom—**

R. & E.....10%

**Lines—**

Wire Clothes, Nos. 18 19 20  
100 feet.....\$2.50 2.25 2.00  
75 feet.....\$2.10 1.90 1.65  
Samson Cordage & Works:  
Solid Braided Chalk, Nos. 0 & 3, 40%  
Masons' Lines, Shade Cord, &c.,  
Silver Lake Braided Chalk, No. 0,  
\$6.00; No. 1, \$6.50; No. 2, \$7.00; No.  
3, \$7.50.....# gr. 20%  
White Cotton, No. 3 1/2, \$1.50; No. 4,  
\$2.00; No. 4 1/2, \$2.50; Colors, No. 3 1/2,  
\$1.75; No. 4, \$2.25; No. 4 1/2, \$2.75;  
Linen, No. 3 1/2, \$2.50; No. 4, \$3.50;  
No. 4 1/2, \$4.50.....20%  
Tent and Awning Lines: No. 5,  
White Cotton, \$7.50; Drab Cotton,  
\$8.50.....20%  
Clothes Lines, White Cotton: 50 ft.,  
\$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75  
ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75;  
100 ft., \$5.25.....20%  
Turner & Stanton Co.:  
Solid Braided Chalk, Masons' and  
Awning Lines.....40%  
Clothes Lines, White Cotton.....20%  
Shade Cord, Cotton or Linen.....20%

**Locks—Cabinet—**

Cabinet Locks.....33 1/2%

**Door Locks, Latches, &c—**

NOTE.—Net Prices are very often made  
on these goods.  
Reading Hardware Co.....40%  
R. & E. Mfg. Co.....10%

**Padlocks—**

R. & E. Mfg. Co. Wrought Steel and  
Brass.....75¢@10¢

**Sash, &c.—**

Ives' Patent:  
Bronze and Brass, 55¢@5¢; Crescent,  
60%; Iron, 60%; Window Ventilat-  
ing, 40¢@20¢; Robinson Pat. Ventil-  
ating Sash Lock, 33 1/2%.

Pullman Patent Ventilating Lock, 35%  
Reading Sash Locks.....40%

**Machines—Boring—**

Com. Up't, without Augers.....  
\$2.00@2.25

Com. Ang'l'r, without Augers,  
\$2.25@2.50

Swan's Improved.....40¢@10¢  
Jennings', Nos. 1 and 4.....25¢@7 1/2¢  
Millers' Falls.....5.75  
Snell's, Upright, \$2.65; Angular, \$2.90

**Corking—**

Reisinger Invinible Hand Power.....  
# doz. \$18.00

**Fence—**

Williams' Fence Machines.....each, \$5.50

**Hoisting—**

Moore's Anti-Friction Chain Hoist, 30%  
Moore's Hand Hoist, with Lock.....20%  
Moore's Cyclon. High Speed Chain  
Hoist.....25%

**Ice Cutting—**

Chandler's.....12 1/2%

**Washing**

Boss Washing Machine Co.: Per doz.  
Boss No. 1, \$1.190.....\$57.00  
Boss Rotary.....\$57.00  
Champion Rotary Banner No. 1, \$57.00  
Standard Champion No. 1.....\$50.00  
Standard Perfection.....\$27.00  
Cincinnati Square Western.....\$33.00  
Uneda American, Round.....\$33.60

**Mallets—**

Hickory.....45¢@50¢  
Lignumvitae.....45¢@50¢  
Tinners' Hickory and Apple-  
wood.....# doz. 45¢@50¢

**Mangers, Stable—**

Swett Iron Works.....50%

**Mats, Door—**

Acme Flexible Steel.....50%  
Elastic Steel (W. G. Co.), new list, 50%

**Mattocks—**

See Picks and Mattocks.

**Milk Cans—See Cans, Milk.****Mills, Coffee, &c.—**

Enterprise Mfg. Co.....20¢@25¢  
National List July 1, 1902.....30%  
Parker's Columbia and Victoria.....33 1/2%  
Parker's Box and Side.....50¢@10¢  
Swift, Lane Bros. Co.....30%

**Motors, Water—**

Divine's Red Devil.....30%  
Lippincott's.....30%

**Mowers, Lawn—**

NOTE.—Net prices are generally quoted

Cheapest, 10-in., \$2.00; 12-in., \$2.10,  
etc.  
Cheap, 10-in., \$2.25; 12-in., \$2.45,  
etc.  
Better Grade, 10-in., \$3.00; 12-in.,  
\$3.25, etc.

High Grade.....\$4.50 4.75 5.00 5.25  
Continental.....60%  
Great American.....70%  
Great American Rail B'n, new list, 70%  
Quaker City.....70%  
Pennsylvania.....60%  
Pennsylvania, Jr., Ball Bearing,  
50¢@10¢5¢  
Pennsylvania Golf.....50%  
Pennsylvania Horse.....33 1/2¢@5¢  
Pennsylvania Pony.....40¢@5¢  
Granite State:  
Style A, Low Wheel.....70%  
Style B, Low Wheel.....70%  
Style C, High Wheel, spl. list,  
70¢@10¢  
Style D, High Wheel, spl. list, 70%

Philadelphia:  
Styles M., S., C., K., T.....70¢@10¢5¢  
Style A, all Steel.....60¢@10¢5¢  
Style E, High Wheel.....70¢@10¢5¢  
Drexel and Gold Coin, special list, 40%  
Horse.....40¢@5¢  
Pony.....40¢@5¢  
36-in. Horse.....30¢@10¢  
Eagle Horse.....30¢@5¢  
I. X. L. Horse.....50%

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**Oakum—**

Best.....lb., 6 1/2¢  
U. S. Navy.....lb., 6¢  
Navy.....lb., 5¢  
Plumbers' Spin Oakum.....2 1/4¢@3¢

**Oil Tanks—See Tanks, Oil.****Oilers—**

Steel, Copper Plated.....75%  
Chase or Paragon:  
Brass and Copper.....50¢@10¢  
Zinc.....65¢@10¢  
Malleable, Hammers, Improved, Nos.  
11, 12 and 13, 20%; Old Pattern, Nos.  
1, 2, 3, 50%.

American Tube & Stamping Co.:  
Spring Bottom Cans.....70¢@10¢10¢  
Railroad Oilers, &c.....60¢@10¢10¢  
Maple City Mfg. Co.:  
Spring Bottom C



**Pinking Irons—**

See Irons, Pinking.

**Pins, Escutcheon—**

Brass ..... 50¢ @ 50¢ & 10¢  
Iron, list Nov. 11, '05... 60¢ @ 60¢ & 10¢

**Pipe, Cast Iron Soil—**

Standard, 2-6 in. .... 60¢ @ 10¢  
Extra Heavy, 2-6 in. .... 70¢ @ 10¢  
Fittings, Standard and Heavy,  
75¢ @ 10¢

**Pipe, Merchant—**

Consumers, Carloads.  
Steel. Iron.  
Bk. Gale. Bk. Gale.

1/4 & 1/2 in.	64	57	41
3/4 in.	66	59	41
1 in.	68	61	49
1 1/4 to 6 in.	72	66	56
7 to 12 in.	69	61	46

**Pipe, Vitrified Sewer—**

Carload lots.  
Standard Pipe and Fittings, 3  
to 24 in., f.o.b. factory:  
First-class ..... 77¢ @ 7¢  
Second-class ..... 80¢ @ 8¢

**Pipe, Stove—**

Per 100 joints.  
Edwards' Nested: C. L. L. C. L.  
5 in., Standard Blue... 75¢  
5 in., Standard Blue... 75¢  
7 in., Standard Blue... 75¢  
5 in., Royal Blue... 75¢  
6 in., Royal Blue... 75¢  
7 in., Royal Blue... 75¢  
Wheeling Corrugating Co.'s Nested:  
5 in., Uniform Color... 75¢  
6 in., Uniform Color... 75¢  
7 in., Uniform Color... 75¢

**Planes and Plane Irons—****Wood Planes—**

Bench, first qual. .... 30¢ @ 30¢ & 10¢  
Bench, second qual. .... 40¢ @ 40¢ & 10¢  
Molding ..... 25¢ @ 25¢ & 10¢  
Chapin-Stephens Co.:  
Bench, First Quality ..... 30¢  
Bench, Second Quality ..... 40¢  
Molding and Miscellaneous ..... 25¢  
Toy and German ..... 30¢  
Union ..... 60¢

**Iron Planes—**

Chaplin's Iron Planes ..... 50¢ @ 10¢  
Union ..... 60¢

**Plane Irons—**

Wood Bench Plane Irons, list  
Dec. 12, '06 ..... 25¢  
Buck Bros. .... 30¢  
Chapin-Stephens Co. .... 25¢  
Union ..... 50¢  
L. & J. J. White ..... 20¢ @ 25¢ & 10¢

**Planters, Corn, Hand—**

Kohler's Eclipse ..... 1/2 doz. \$3.00

**Plates—**

Felco ..... 1/4 @ 4 1/4¢

**Pliers and Nippers—**

Button Pliers ..... 75¢ @ 75¢ & 10¢  
Gas Burner, per doz. 5 in., \$1.25  
@ \$1.30; 6 in., \$1.45 @ \$1.50.  
Gas Pipe, 7 8 10 12 in.  
\$2.00 \$2.25 \$2.75 \$3.50  
Acme Nippers ..... 50¢ @ 5¢  
Cronk & Carrier Mfg. Co.:  
American Button ..... 80¢  
Improved Button ..... 75¢ @ 10¢  
Cronk's ..... 60¢  
No. 80 Linemen's ..... 50¢  
Stub's Pattern ..... 45¢  
Combination and others ..... 35¢  
Heller's Farriers' Nippers, Pinners  
and Tools ..... 40¢ @ 40¢ & 10¢  
P., S. & W. Timmers Cutting Nip-  
pers ..... 40¢  
Wm. Schollhorn Co.:  
Bernard, 35%; Elm City, 35%;  
Paragon, 50%; Lodi, 55%.  
Swedish Side, End and Diagonal Cut-  
ting Pliers ..... 50¢  
Utica Drop Forge & Tool Co.:  
Pliers and Nippers, all kinds ..... 40¢

**Plumbs and Levels—**

Chapin-Stephens Co.:  
Plumbs and Levels ..... 30¢ @ 30¢ & 10¢  
Chapin's Imp. Brass Cor. 40¢ @ 40¢ & 10¢  
Pocket Levels ..... 30¢ @ 30¢ & 10¢  
Extension Sights ..... 30¢ @ 30¢ & 10¢  
Machinists' Levels ..... 40¢ @ 40¢ & 10¢  
Disston's Plumbs and Levels ..... 60¢ @ 10¢  
Disston's Pocket Levels ..... 60¢ @ 10¢  
Stanley's Duplex ..... 35¢  
Woods' Extension ..... 35¢

**Points, Glaziers—**

Bulk and 1-lb. papers ..... 75¢ 9¢  
1/4-lb. papers ..... 75¢ 9¢  
1/2-lb. papers ..... 75¢ 10¢

**Police Goods—**

Manufacturers' Lists ..... 25¢ @ 25¢ & 10¢  
Tower's ..... 25¢

**Polish—Metal, Etc—**

Prestoline Liquid, No. 1 (1/4 qt.), 1/2  
doz. \$3.00; No. 2 (1 qt.), \$2.00, 40¢  
Prestoline Paste ..... 60¢

George William Hoffman:  
U. S. Metal Polish Paste, 3 oz.  
boxes, 1/2 doz. \$0.50; 1/2 doz. \$1.00;  
1 lb boxes, 1/2 doz. \$1.25; 1 lb  
boxes, 1/2 doz. \$2.25.  
U. S. Liquid, 8 oz. cans, 1/2 doz.,  
\$1.25.  
Barkeepers' Friend Metal Polish, 1/2  
doz., \$1.75.

**Stove—**

Black Eagle Benzine Paste, 5 lb cans,  
1/2 doz. \$1.00  
Black Eagle, Liquid, 1/2 pt. cans,  
1/2 doz. 75¢  
Black Jack Paste, 1/2 lb cans, 1/2 gr. \$9.00  
Black Kid Paste, 5 lb cans, each, \$0.65  
Ladd's Black Beauty Liquid, per  
100 tins ..... \$5.75  
Joseph Dixon's, 1/2 gr. \$5.75 ..... 10¢  
Dixon's Plumbago ..... 10¢  
Fireaid ..... 10¢  
Gem, 1/2 gr. \$1.50 ..... 10¢  
Japanese ..... 10¢  
Jet Black ..... 10¢  
Peerless Iron Enamel, 10 oz. cans,  
1/2 doz. \$1.50

**Peppers, Corn—**

1 qt. Square ..... doz. \$0.80; gro. \$8.75  
1 qt. Round ..... doz. \$0.90; gro. \$10.00  
1 1/2 qt. Square ..... doz. \$1.00; gro. \$11.00  
2 qt. Square ..... doz. \$1.25; gro. \$13.50

**Post Hole and Tree Au-  
gurs and Diggers—**

See also Diggers, Post Hole, &amp;c.

**Posts, Steel—**

Steel Fence Posts, each, 5 ft., 4 1/2¢;  
6 ft., 4 1/2¢; 6 1/2 ft., 4 1/2¢.  
Steel Hitching Posts ..... each \$1.30

**Potato Parers—**

See Parers, Potato.

**Pots, Glue—**

Enamelled ..... 35¢ @ 10¢  
Tinned ..... 30¢ @ 10¢

**Powder—**

In Canisters:  
Duck, 1 lb ..... each 45¢  
Fine Sporting, 1 lb ..... each 75¢  
Rifle, 1/2 lb ..... each 15¢  
Rifle, 1 lb ..... each 25¢  
In Kegs:  
12 1/2 lb. kegs ..... \$3.50  
25 lb. kegs ..... \$4.50  
King's Semi-Smokeless:  
Keg (25 lb bulk) ..... \$6.50  
Half Keg (12 1/2 lb bulk) ..... \$3.50  
Quarter Keg (6 1/2 lb bulk) ..... \$1.90  
Case 24 (1 lb cans bulk) ..... \$8.50  
Half case (1 lb cans bulk) ..... \$4.50  
King's Smokeless:  
Keg (25 lb bulk) ..... \$12.00 \$15.00  
Half Keg (12 1/2 lb bulk) ..... 6.25 7.75  
Quarter Keg (6 1/2 lb bulk) ..... 3.25 4.00  
Case 24 (1 lb cans bulk) ..... 14.00 17.00  
Half case 12 (1 lb c. bks) ..... 7.25 8.75

**Presses—****Fruit and Jelly—**

Enterprise Mfg. Co. .... 20¢ @ 25¢

**Seal Presses—**

Morrill's No. 1, 1/2 doz., \$20.00 ..... 50¢

**Pruning Hooks and Shears**

See Shears.

**Pullers, Nail—**

Cyclops ..... 60¢  
Miller's Falls, No. 3, 1/2 doz., \$12.00 ..... 33 1/3 @ 10¢  
Morrill's No. 1, Nail Puller, 1/2 doz. \$20.00 ..... 50¢  
Pearson No. 1, Cyclone Spike Puller,  
each \$30.00 ..... 50¢  
The Scranton Co. Case Lots:  
No. 2B (large) ..... \$5.50  
No. 3B (small) ..... \$5.00  
Smith & Hemenway Co.:  
Diamond B ..... 70¢  
Giant ..... 50¢  
Staple Pullers, Utica and Davi-  
son ..... 60¢

**Pulleys, Single Wheel—**

Inch	1 1/2	2	3
Awning or Tackle, doz.	\$0.50	.45	.60
Hay Fork, Suction or Solid Eye, doz., 1/2 in., \$1.25; 5 in., \$1.55			
Hot House, doz.	\$0.65	.85	1.00
Inch	1 1/2	2	3
Screw, doz.	\$0.16	.19	.23
Inch	1 1/2	2	3
Side, doz.	\$0.25	.40	.55
Inch	1 1/2	2	3

**Sash Pulleys—**

Common Frame; Square or  
Round End, per doz. 1 1/2 and  
2 in. .... 17¢ @ 20¢  
Auger Mortise, no Face Plate,  
per doz. 1 1/2 and 2 in. .... 20¢ @ 21¢  
Acme No. 35, 1 1/2 in., 19¢; 2 in., 20¢  
American Pulley Co.:  
Wrought Steel American Plain  
Axle ..... 50¢ @ 10¢  
Wrought Steel, Eagle ..... 17¢ @ 20¢  
Fox-All-Steel, Nos. 3 and 1, 2 in.,  
1/2 doz. 50¢  
Grand Rapids All Steel Noiseless, 50¢  
Niagara, No. 25, 1 1/2 in., 19¢; 2  
in., 20¢  
No. 26, Troy, 1 1/2 in., 14 1/2¢; 2 in., 16 1/2¢  
Star, No. 26, 1 1/2 in., 19¢; 2 in., 20¢  
Tackle Blocks—See Blocks.

**Pumps—**

Cistern ..... 60¢  
Pitcher Spout ..... 75¢ @ 75¢ & 10¢  
Wood Pumps, Tubing, &c. .... 50¢  
Barnes Dbl. Acting (low list) ..... 40¢ @ 5¢  
Barnes Pitcher Spout ..... 15¢ @ 10¢  
Contractors' Rubber Diaphragm No.  
2 B. & L. Block Co. .... \$16.00  
Daisy Spray Pump ..... 1/2 doz. \$6.50

Flint & Walling's, Fast Mail Hand,  
(low list) ..... 50¢  
Flint & Walling's Fast Mail (low  
list) ..... 50¢  
Flint & Walling's Tight Top Pitcher,  
75¢ @ 10¢  
National Specialty Mfg. Co. Measur-  
ing Nos. 2, \$6.00; 3, \$5.50 ..... 30¢  
Myers' Pumps (low list) ..... 40¢ @ 5¢  
Myers' Power Pumps ..... 40¢ @ 5¢  
Myers' Spray Pumps ..... 40¢ @ 5¢

**Pump Leathers—**

Plunger and Valve Leathers—Per  
gro.:

No.	1	2	3	4
Track	\$5.00	6.00	7.00	8.00

Cup Leathers—Per 100:  
Inch. 2 1/2 3 3 1/2 4  
\$5.00 7.00 9.00 12.00

**Punches—**

Saddlers' or Drive, good ..... doz. 50¢ @ 75¢  
Spring, single tube, good qual-  
ity ..... \$1.75  
Revolving (4 tubes) ..... doz. \$3.50  
Hemlock & Call Co.'s Cast Stl Drive, 50¢  
Morrill's Nos. 1A, 1A, 1B, 1C,  
1D, \$15.00 ..... 50¢  
Hercules, 1 die, each \$5.00 ..... 50¢  
Niagara Hollow Punches ..... 40¢  
Niagara Solid Punches ..... 50¢ @ 10¢  
Wm. Schollhorn Co.:  
Belt and Ticket, Bernard, 35%;  
Paragon, 50%; Lodi ..... 55¢  
Timmers' Hollow, P., S. & W. Co. 40¢  
Timmers' Solid, P., S. & W. Co.,  
doz., \$14.11 ..... 40¢

**Rail—Barn Door, &c.—**

Sliding Door, Painted Iron ..... 2 1/2 @ 2 1/4¢

Sliding Door, Wrought Brass,  
1 1/2 in., lb., 35¢ ..... 30¢

Allith Mfg. Co.: Reliable Hanger  
Track ..... 50¢

Cronk's:  
Double Braced Steel Rail, 1/2 ft. 3 1/4¢  
O. N. T. Rail, ..... \$3.12

Griffin's:  
xxx, 100 ft., 1 x 3-16 in., \$3.25;  
1 1/2 x 3-16 in., \$3.75,  
Hinged Hanger, 100 ft., 1 x 3-16  
in., \$3.50; 1 1/2 x 3-16 in., \$4.00.

Lane's:  
Hinged Track, 100 ft. .... \$3.45  
3-16, \$2.25; 1 1/2 x 3-16, \$3.50; 1 1/2  
in., \$3.45; 1 1/2 in., \$4.00.  
Standard, 1 1/2 in. .... 100 ft. \$4.00

Lawrence Bros.:  
1 x 3-16 in., 100 ft., \$7.50; 1 1/2 x  
3-16 in., \$8.75 ..... 55¢ & 7 1/2¢

McKinney's:  
Hinged Hanger Track, 1/2 ft., 11¢,  
60¢ @ 5¢  
1 x 3-16 Track ..... 55¢ & 7 1/2¢

Myers' Stayon Track ..... 60¢ @ 5¢

Richards' Mfg. Co.:  
Common, 1 1/2 x 3-16 in., \$3.00; 1 1/2 x  
3-16, \$2.25; 1 1/2 x 3-16, \$3.50.  
Special Hinged Hanger Rail, 60¢ @ 10¢  
Lag Screw Rail, No. 65 ..... 50¢  
Gauge Trolley Track, 1/2 ft., No. 31,  
9¢; No. 32, 14¢; No. 33, 20¢.  
No. 50 ..... 60¢ @ 10¢  
Nos. 61, \$3.00; 62, \$3.25; 63, \$3.50; 64,  
\$4.00; 65, \$3.25; 66, \$3.50; 67, No. 1,  
\$3.25; 68, No. 2, \$3.50.

Rakes—  
NOTE.—Many goods are sold  
at net prices.

Fort Madison Red Head Lawn ..... \$3.25  
Fort Madison Blue Head Lawn ..... \$2.70

Cronk's:  
Steel Garden: Champion, 75%;  
Ideal, 80%; Victor ..... 80¢ @ 25¢  
Queen City Lawn, 1/2 doz., 20 teeth,  
\$2.55; 24, \$3.00 ..... net  
Anticlog Lawn, 1/2 doz. ..... \$1.00  
Malleable Garden ..... 70¢ @ 10¢  
Ideal Steel Garden, 1/2 doz., 12 teeth,  
\$15.00; 14, \$16.00; 16, \$18.00 ..... 80¢

Kohler's:  
Lawn Queen, 20-tooth ..... 1/2 doz. \$3.15  
Lawn Queen, 24-tooth ..... 1/2 doz. \$3.25  
Paragon, 20-tooth ..... 1/2 doz. \$2.70  
Paragon, 24-tooth ..... 1/2 doz. \$2.75  
Steel Garden, 14-tooth ..... 1/2 doz. \$2.40  
Malleable Garden, 14-tooth, 1/2 doz. \$2.00 @ 2.25

New Nicholson ..... 60¢ @ 10¢ & 75¢  
See also Files.

**Razors—**

Liana Bo-ras-le ..... 60¢  
Fox Razors, 1/2 doz., No. 42, \$2.00;  
No. 44, \$2.00; No. 52, Platina, }  
\$2.00. }  
Red Deril ..... 75¢

**Reels, Fishing—**

Hendry:  
M 6, Q 6, A 6 B 6, M 9 1/4, M 16,  
Q 16, A 16, B 16, 4008, Rubber,  
Populo, Nickered Populo ..... 20¢  
Aluminum German Silv., Bronze, 25¢  
1240 N, 124 N ..... 20¢  
3004 N, 06 N, 6 RM, G 9 ..... 25¢  
4 1/2 6 PN, 24 N, 25 PN ..... 20¢  
2904 P, 33 1/4, 2904 PN, 33 1/4, 2904 PN,  
33 1/4, 802 N, 33 1/4, 802 N, 33 1/4,  
906 PN, 2904 N, 974 PN ..... 25¢  
909 PN, 5009 N ..... 20¢  
Competitor, 102 P, 102 PN, 202 P,  
202 PN, 102 PR, 202 PR ..... 20¢  
304 P, 304 PN, 00304 P, 00304 PN, 33 1/4

**Registers—List July 1, 1903.**

Japanned, Electroplated and  
Bronzed ..... 70¢ @ 70¢ & 10¢  
White Porcelain Enamel ..... 50¢ @ 10¢  
Solid Brass or Bronze Metal, 40¢

**Revolvers—**

Single Action ..... 95¢ @ \$1.00  
Double Action, except 4 1/2 cal. \$2.00  
Double Action, 4 1/2 caliber ..... \$2.00  
Automatic ..... \$3.00  
Hammerless ..... \$4.50

**Riddles, Hardware Grade**

16 in. .... per doz. \$2.50 @ \$2.75  
17 in. .... per doz. \$2.75 @ \$3.00  
18 in. .... per doz. \$3.00 @ \$3.25

**Rings and Ringers—**

Bull Rings—  
Steel ..... 2 1/4 3 inch.  
Copper ..... 1.25 1.65 doz.

Hog Rings and Ringers—  
Hill's Rings, gro. boxes ..... \$4.25  
Hill's Ringers, Gray Iron, doz. 60¢  
Hill's Ringers, Malleable Iron,  
doz. 80¢  
Blair's Rings ..... per gro. \$8.50  
Blair's Ringers ..... per doz. 75¢  
Brown's Rings ..... per gro. \$5.25  
Brown's Ringers ..... per doz. 75¢

**Rivets and Burrs—**

Copper ..... 50¢  
Carriage, Coopers', Timmers, &c.,  
Black ..... 70¢ @ 10¢  
Metallic Tinned ..... 70¢

Bifurcated and Tubular—  
Assorted in Boxes.  
Bifurcated, per doz. boxes, note-  
board boxes, 50 count, \$3 @ 25¢;  
Tin boxes, 100 count, 29¢ @ 32¢.  
Tubular, per doz. boxes, 50 count,  
29¢ @ 32¢; 100 count, \$1 @ 35¢.

**Rollers—**

Cronk's Stay, No. 50 ..... \$1.00  
Cronk's Brunkerhoff No. 55, \$0.80;  
No. 56, \$0.75; No. 60 ..... \$0.75  
Lane's Stay ..... 40¢  
Richards' Stay:  
Handy Adj. and Reversible No. \$3.75  
O. K. Adj. and Reversible No. \$8.50  
Lag Screw, Nos. 65 and 67 ..... 50¢  
Underwriters', Nos. 59, 60 ..... 50¢  
Favorite, No. 51 ..... 60¢

**Rope—**

Manila, 7-16 in. diam. and larger:  
Pure ..... 1/2 lb. 11 1/2¢ @ 12¢  
Sisal, 7-16 in. diam. and larger:  
Pure ..... 1/2 lb. 8¢  
Sisal, 7-16 in. diam. and larger:  
No. 2 quality ..... 1/2 lb. 7¢ @ 7 1/4¢  
Sisal, Hay, Hide and Bale  
Ropes, Medium and Coarse:  
Mixed ..... 1/2 lb. 7¢ @ 7 1/4¢  
Pure ..... 1/2 lb. 9 1/4¢  
Sisal, Tarred, Medium Lath  
Yarn, Coarse and Untarred:  
Mixed ..... 1/2 lb. 6 1/4¢ @ 6 1/2¢  
Pure ..... 1/2 lb. 7 1/4¢  
Cotton Rope:  
Best, 1/4-in. and larger ..... 18¢ @ 20¢  
Medium, 1/4-in. and larger, 16¢ @ 17¢  
Common, 1/4-in. and larger ..... 10¢  
In coils, 1/4¢ advance.

Jute Rope:  
Thread, No. 1, 1/4-in. & up, 1/2 lb. 7 1/2¢ @ 8¢  
Thread, No. 2, 1/4-in. & up, 1/2 lb. 7¢ @ 7 1/2¢

**Wire Rope—**

Galvanized ..... 37 1/2¢ @ 2 1/2¢  
Plain ..... 45¢ @ 2 1/2¢

**Ropes, Hammock—**

Covert Mfg. Co.:  
Jute, 35%; Sisal ..... 20¢

**Rules**

Boxwood ..... 60¢ @ 60¢ & 10¢  
Ivory ..... 35¢ @ 10¢ & 10¢ @ 5¢  
Chapin-Stephens Co.:  
Boxwood ..... 60¢  
Flexiford ..... 40¢  
Ivory ..... 25¢ @ 25¢ & 10¢  
Miscellaneous ..... 50¢ @ 50¢ & 10¢  
Stephens' Combination ..... 55¢  
Stationers' ..... 50¢ @ 50¢ & 10¢  
Kauffel & Esser Co.:  
Folding, Wood ..... 35¢ @ 10¢  
Folding, Steel ..... 35¢ @ 10¢  
Lufkin's Steel ..... 50¢ @ 10¢  
Lufkin's Lumber ..... 50¢ @ 10¢  
Union Nut Co.:  
Boxwood ..... 60¢ @ 60¢ & 10¢  
Ivory ..... 35¢ @ 10¢ & 10¢ @ 10¢

Sash Balances—  
See Balance, Sash.

Sash Locks—See Locks, Sash.

Sash Weights—  
See Weights, Sash.

Sausage Stuffers or Fillers  
See Stuffers or Fillers, Sausage.

Saw Frames—  
See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Saws—	
Atkins' Circular	45%
Band	50@50.10
Butcher Saws	50%
Cross Cuts	35%
One-Man Cross Cut	40%
Narrow Cross Cut	50%
Hand, Hip and Panel	35@50
Miter Box and Compass	40%
Mulay, Mill and Drag	45%
Wood Saws	40@10%
Chapin-Stephens Co.	
Turning Saws and Frames	30@30.10%
Diamond Saw & Stamping Works	
Sterling Kitchen Saws	30@10.10%
Disston's:	
Circular, Solid and Ins'ted Tooth	50%
Band, 2 to 18 in. wide	60%
Hand, 1/4 to 1 1/2	60%
Crosscuts	45%
Narrow Crosscuts	45%
Mulay, Mill and Drag	50%
Framed Woodsaws	25%
Woodsaw Blades	25%
Woodsaw Rods, Tuned	15%
Hand Saws, Nos. 12, 9, 9, 16, d100	
D8, 120, 76, 77, 8	25%
Hand Saws, Nos. 7, 107, 107 1/2, 3	
8, 00, Combination	25%
Compass, Key Hole, &c.	25%
Butcher Saws and Blades	30%
E. Jennings & Co.'s:	
Back Saws	16%
Butcher Saws	25@17 1/2
Compass and Key Hole Saws	33 1/2@7 1/2
Framed Wood Saws	25@7 1/2
Hand Saws	12 1/2
Wood Saw Blades	33 1/2@7 1/2
Millers Falls:	
Butcher Saws	15@10%
Star Saw Blades	15@10%
Massachusetts Saw Works:	
Victor Kitchen Saws	40@10.50%
Butcher Saws	35@40%
Peace & Richardson's Hand Saws	30%
Simonds':	
Circular Saws	45%
Crescent Ground Cross Cut Saws	30%
One-Man Cross Cuts	40@10%
Gang Mill, Mulay and Drag Saws	45%
Band Saws	60%
Back Saws	35@35 1/2
Butcher Saws	25@25 1/2
Hand Saws	25@25 1/2
Hand Saws, Bay State Brand	45%
Compass, Key Hole, &c.	25@25 1/2
Wood Saws	40@7 1/2
Wheeler, Madden & Clemens Mfg.	
Co.'s Cross Cut Saws	40%
Hack Saw Blades and Frames—	
Atkins' Hack Saw Blades A & A	25%
Disston's:	
Concave Blades	25%
Keystone Blades	30%
Hack Saws	30%
Simonds' Hack Saws	35%
E. Jennings & Co.'s:	
Hack Saw Frames, Nos. 175, 180	40@7 1/2
Hack Saws, Nos. 175, 180, complete	40@7 1/2
Goodell's Hack Saw Blades	40@10%
Griffin's Hack Saw Frames	35@5.10%
Griffin's Hack Saw Blades	35@5.10%
Star Hack Saws and Blades	15@10%
Sterling Hack Saw Frames	30@10.10%
Sterling Power Hack Saw Machines	
each, No. 1, \$25.00; No. 2, \$30.00	10%
Victor Hack Saw Blades	20%
Victor Hack Saw Frames	40%
Whitaker Mfg. Co.:	
National Hand Blades	40%
National Hand Frames	30@5%
National Power Blades	30@10%
Scroll—	
Barnes, No. 7, 1 1/2	25%
Barnes' Scroll Saw Blades	40%
Barnes' Velocipede Power Scroll Saws	
without boring attachment	\$18
with boring attachment	\$20
Lester, complete	\$10.00
Rogers, complete	\$3.50 and \$4.00
	15@10%
Scales—	
Family, Turnbull's	50@50.10%
Counter:	
Hatch, Platform, 1/2 oz. to 4 lbs.	doz. \$5.50
Two Platforms, 1/2 oz. to 8 lbs.	doz. \$16.00
Union Platform, Plain	\$1.70@1.90
Union Platform, Std.	\$1.85@2.15
Chatillon's:	
Eureka	25%
Favorite	40%
Crocker's Trip Scales	50%
The Standard Portables	40%
The Standard R. R. and Wag-	
ons	50@10%
Scrapers—	
Box, 1 Handle	doz. \$2.00@2.25
Box, 2 Handle	doz. \$2.50@2.60
Ship	Light, \$2.00; Heavy, \$1.50
Chapin-Stephens Co.	Box, 30@30.10%
Richards Mfg. Co., Foot	60%
Screws—Bench and Hand	
Bench, Iron, doz., 1 in.	\$2.50@
2 1/2; 1 1/2, \$3.00@3.25; 1 1/4, \$3.50@3.75	
Bench, Wood	20@20.10%
Hand, Wood	70@10@70.10.10%
Chapin-Stephens Co., Hand	70@10.10@2 1/2
Coach, Lag and Hand Pull—	
Lag, Cone Point	80@80.5%
Coach, Gimlet Point	75@10@75.10.5%
Hand Rail	70@10@75%
Jack Screws—	
Standard List	70@10@7%
Millers Falls	50@10.10%
Swett Iron Works	70@75%
Machine—	
Cut Thread, Iron, Brass or Bronze:	
Flat Head or Round Head	50@50.10%
Fuller Head	40@40.10%

Rolled Thread, F. H. or R. H., Iron	75@10%
F. H. or R. H., Brass, Nos. 8 to 14	65@10%
Set and Cap—	
Set (Iron)	75@10.75%
Set (Steel), net advance over Iron	85%
Sq. Hd. Cap	70@10.75%
Hex. Hd. Cap	70@10.75%
Rd. Hd. Cap	50@7 1/2
Fillister Hd. Cap	60@7 1/2
Wood—	
List July 23, 1903.	
Flat Head, Iron	87 1/2@45%
Round Head, Iron	85@45%
Flat Head, Brass	80@45%
Round Head, Brass	77 1/2@45%
Flat Head, Bronze	75@45%
Round Head, Bronze	72 1/2@45%
Drive Screws	87 1/2@45%
Scroll Saws—	
See Saws, Scroll.	
Scythes—	
Per doz.	
Grass, No. 1, Plain	\$7.00@7.50
Clipper, Bronzed Webb	\$7.25@7.75
No. 3 Clipper, Pol'd Webb	\$7.50@8.00
No. 6 Clipper and Solid Steel	\$7.75@8.25
Bush, Weed and Bramble, Nos. 11, 12 and 13	\$7.25@7.75
Grain, No. 1	\$9.00@9.50
Bronzed Webb, No. 1	\$9.25@9.75
Nos. 3 and 4 Clipper, Grain	\$9.50@10.00
Solid Steel, No. 6	\$10.00@10.50
Seeders, Raisin—	
Enterprise	25@30%
Sets— Awl and Tool—	
Fray's Adj. Tool Handles, Nos. 1, 1 1/2; 2, 3; 3 1/2; 4, 5; 5 1/2	50%
Millers Falls Adj. Tool Handles, No. 1, 1 1/2; No. 4, 1 1/2; No. 5, 3 1/2	20@10%
Garden Tool Sets—	
Ft. Madison Three Plows, Hoe, Rake and Shovel	doz sets \$9.00
Sets, Nail—	
Octagon	gro. \$3.50@3.75
Buck Bros	27%
Cannon's Diamond Point	gro. \$12
Mayhew's	40@10%
Snell's Corrugated Cup Pt.	40@10%
Snell's Knurled, Cup Pt.	40@10%
Victor Knurled Cup Pt.	gro. \$7.50
Rivet—	
Regular list	75@75.10%
Saw—	
Atkins' Criterion	40%
Adjustable	40%
Disston's Star, Monarch and Triumph	30%
Morrill's No. 1	\$15.00
Nos. 3 and 4, Cross Cut	\$20.00
No. 5, Mill	\$30.00
Nos. 10, 11, 95	\$15.00
No. 1 Old Style	\$10.00
Special	\$16.25
Giant Royal Cross Cut	doz. \$2.00
Royal, Hand	doz. \$4.50
Taintor Positive	doz. \$6.75
Shaving—	
Fox Shaving Sets, No. 30	doz., net, \$24.00
Smith & Hemenway Co.'s	75%
Sharpeners, Knife—	
Pike Mfg. Co.:	
Fast Cut Pocket Knife Hones	doz. \$1.50
Mounted Kitchen Sand Stone	\$1.50
Natural Grit Carving Knife Hones	doz. \$3.00
Quick Cut Emery Carving Knife Hones	doz. \$1.50
Quick Edge Pocket Knife Hones	doz. \$2.50
Skate—	
Smith & Hemenway Co., Eureka	50%
Shaves, Spoke—	
Iron	doz. \$1.25
Wood	doz. \$2.00
Ballie's (Stanley R. & L. Co.)	45%
Chapin-Stephens Co.	30@30.10%
Goodell's	doz. \$9.00
	15@10%
Shears—	
Cast Iron	7 8 9 in.
Best	\$16.00 18.00 20.00 gro.
Good	\$13.00 15.00 17.00 gro.
Cheap	\$5.00 6.00 7.00 gro.
Straight Trimmers, &c.:	
Best quality Jap.	70@70.10%
Best quality, Nickel	60@60.10%
Tailors' Shears	40@40.10%
Acme Cast Shears	40@40.5%
Wilkinson's Tailors' Shears	10%
Sheep, 1900 list	30@10.5%
Grass or Mule	50@10%
J. Wiss & Sons Co.	50@10%
Best Quality Jap'd	60@10%
Best Quality Nickeld	50@10%
Tailors'	25%
Tinnerns' Snips—	
Steel Blades	20@5@20.10%
Steel Laid Blades	40@10@50%

Forged Handles, Steel Blades, Berlin	50%
Heinisch's Snips	40%
Jennings & Griffin Mfg. Co.'s 6 1/2 to 10 in.	33 1/2@7 1/2
Niagara Snips	40%
P. S. & W. Forged Handles	25%
W. R. W.	40@10%
J. Wiss & Sons Co.	
Wiss Forged Steel	25%
Pruning Shears—	
Cronk's Hand Shears	33 1/2%
Cronk's Wood Handle Shears	33 1/2%
Disston's Combined Pruning Hook and Saw	doz. \$13.00
Disston's Pruning Hook only	doz. \$12.00
John T. Henry Mfg. Co.:	
Pruning Shears, all grades	40%
P. S. & W. Co.	40@10%
Columbian Cutlery Co.	
Hedge, Wilcut Brand	60@10%
Lawn and Border, Wilcut Brand	60@10%
Sheaves—Sliding Door—	
Reading	40%
R. & E. list	15%
Sliding Shutter—	
Reading list	40%
R. & E. list	10%
Shells—Shells, Empty—	
Brass Shells, Empty:	
Climax, 10 and 12 gauge	65@10%
Club, Rival, 65@5 1/2; First Quality	60@5 1/2
Paper Shells, Empty:	
New Rapid, 10, 12, 16 and 20 gauge	25@10%
Climax, 10 and 12 gauge; Acme, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade	25@5%
Union, League, 12 and 12 gauge; Rival grade	25%
New Climax, Dehance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge; Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade	20%
Shells, Loaded—	
Loaded with Black Powder	40%
Loaded with Smokeless Powder medium grade	40@5%
Loaded with Smokeless Powder, high grade	40@10.10%
Union Metallic Cartridge Co.:	
New Club, Black Powders	40%
Nitro Club, Smokeless Powders	40@5%
Arrow, Smokeless Powders	40@10.10%
Winchester:	
Smokeless Repeater Grade	40@5%
Smokeless Leader Grade	40@10.10%
Black Powder	40%
Shingles, Metal—Per Sq.	
Edwards Mfg. Co.:	
Painted	Galv.
14 x 20	\$1.25 \$2.00
12 x 18	\$1.50 \$2.25
10 x 16	\$1.75 \$2.50
Wheeling Corrugating Co.:	
Dixie, 14 x 20 in.	\$1.25 \$3.50
Dixie, 10 x 14 in.	4.50 6.00
Dixie, 7 x 10 in.	5.00 6.75
Shoes, Horse, Mule, &c.—	
F.o.b. Pittsburgh:	
Iron	per key \$4.10
Steel	per key \$3.85
Burden's, all sizes	per key \$3.90
Shot—	
Drop, up to B	25-lb. bag. \$1.85
Drop, B and larger	2.10
Ruck	2.10
Chilled	2.10
Dust	2.30
Shovels and Spades—	
Association List, Nov. 15, 1902	40%
Avery Stamping Co.	40%
Snow Shovels—	
Long Handle	\$3.25@3.50
Wood and Mail, D. Handle	\$3.75@4.00
Sieves and Sifters—	
Hunter's Imitation	gro. \$9.50@10.00
Hunter's Genuine	per gro. \$12.00@12.50
Sifters, Ash—	
Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each	\$3.25
doz.	\$39.00
Sieves, Seamless Metallic	
Per dozen.	
Mesh	14 16 18 20
Iron Wire	\$1.05 1.05 1.10 1.20
Tinned Wire	\$1.15 1.15 1.20 1.30
Sieves, Wooden Rim—	
Nested, 10, 11 and 12 Inch.	
Mesh 18, Nested	doz. \$0.90@0.95
Mesh 20, Nested	doz. \$1.00@1.05
Mesh 24, Nested	doz. \$1.30@1.40
Sinks, Cast Iron—	
Painted, Standard list:	
12 x 12 to 22 x 36 in.	60%
20 x 40 to 24 x 50 in.	50%
24 x 60 to 24 x 120 in.	30%
Barnes' low list:	
Up to and including 20 x 36 in.	50@5%
20 x 40 to 24 x 50 in.	45%
NOTE—There is not entire uniformity in lists used by jobbers.	
Skeins, Wagon—	
Cast Iron	70@75.10%
Steel	40@45%

Slates, School—	
Factory Shipments.	
"D" Slates.....	50@50.10%
Eureka, Unexcelled Noiseless.....	60@5 tens
Victor A, Noiseless.....	60@5 tens 45%
Slaw Cutters—See Cutters.	
Snaps, Harness—	
German.....	40@40.10%
Covert Mfg. Co.:	
Derby, 25, Yankee.....	30@2%
Roller.....	30@2%
High Grade.....	40%
Jockey.....	25%
Snaths—	
Scythe.....	55@60%
Snips, Tinnerns—See Shears.	
Spoons and Forks—	
Silver Plated—	
Good Quality.....	50@10@60.45%
Cheap.....	60@60.10%
International Silver Co.	
1847 Rogers Bros.....	40@10%
Rogers & Hamilton.....	50@10%
Rogers & Bro., William Rogers.....	30@10%
Eagle Brand.....	50@10%
Anchor Rogers Brand.....	60%
Wm. Rogers & Son.....	60@10%
Miscellaneous	
German Silver.....	60@60.45%
Tinned Iron—	
Teas.....	per gro. 50@55%
Tables.....	per gro. \$0.90@1.00
Springs—Door—	
Bardsley's Spring and Check.....	40%
Chicago (Coil).....	40@10%
Gem (Coil).....	20%
Pullman (Coil).....	35%
Reliance (Coil).....	40@10%
Star (Coil).....	30%
Torrey's Rod, 39 in.....	doz. \$1.10
Carriage, Wagon, &c.—	
1/4 in. and Wider:	Per 100 lb.
Black.....	\$4.75@5.00
Half Bright.....	\$4.75@5.00
Bright.....	\$5.25@5.50
Painted Seat Springs:	
1/2 x 2 x 26.....	per pr. \$2.49@2.56
1/2 x 3 x 28.....	per pr. \$2.73@2.77
Sprinklers, Lawn—	
American Foundry & Mfg. Co.:	
Cactus, 65%; Japanese, 70%; National,	doz.....
Enterprise.....	25@30%
Philadelphia No. 1, doz.....	\$12
2, \$15; No. 3, \$20.....	30%
Squares—	
Nickel plated.....	List Jan. 5, 1900.
Steel and Iron.....	80@80.5%
Rosewood Hd. Try Square and T-Bevels.....	60@10.10@70%
Iron Hd. Try Squares and T-Bevels.....	40@10@10.10.10%
Disston's Try Squares and Bevels, Rosewood Handle, 60@10%; Iron Stock and Bevel.....	15%
Squeezers, Lemon	
Wood, Common, gro., No. 0, \$5.25@5.50; No. 1, \$6.25@6.50.	
Wood, Porcelain Lined:	
Cheap.....	doz. \$1.00
Good Grade.....	doz. \$1.25
Tinned Iron.....	doz. \$0.75@1.25
Iron, Porcelain Lined.....	doz. \$1.75
Staples—	
Barbed Blind.....	85@85.10%
Electricians'.....	80@100.85%
Fence Staples, Plain, 2 1/2; Galvanized.....	\$2.45
Poultry Netting Staples.....	per lb. 3/4@3 1/4
Steels, Butchers—	
Dick's.....	30%
Forster Bros.....	30%
Steelyards—	
	50@30.10%
Stocks and Dies—	
Blacksmiths'.....	50@50.10%
Curtis Rev'ble Ratchet Die Stock.....	25%
Derby Screw Plates.....	25%
Green River.....	25%
Lightning Screw Plate.....	25%
Little Giant.....	25%
Reece's New Screw Plates.....	25%
Stoners, Cherry—	
Enterprise.....	25@30%
Stones—Oil, &c.	
Pike Mfg. Co., 1907 list:	
Arkansas St. No. 1, 3 1/2 x 5 1/2 in.....	\$4.00
Arkansas St. No. 1, 3 1/2 x 8 in.....	\$3.50
Arkansas Slips No. 1.....	\$4.00
Lily White Washita, 4 to 8 in.....	60c
Rosy Red Washita, 4 to 8 in.....	60c
Washita St., Extra, 4 to 8 in.....	50c
Washita St., No. 1, 4 to 8 in.....	40c
Washita St., No. 2, 4 in.....	25c
Lily White Slips.....	90c
Rosy Red Slips.....	90c
Washita Slips, Extra.....	80c
Washita Slips, No. 1.....	70c
Washita Slips, No. 1.....	40c
Indiana Oil Slips (see list).....	35c
Quickest Emery and Corundum Oil Stone, Double Grit.....	40%
Quickest Emery and Corundum Oil Stone, Double Grit.....	35%
Quickest Emery Rubbing Bricks.....	40%
Hindustani No. 1, R. & L. #10 & #12.....	35c
Hindustani No. 1, Small, #10 & #12.....	35c
Ax Stones (all kinds).....	25c
Turkey Oil Stones, Extra.....	25c
8 in.....	25c
Queer Creek Stones, 4 to 8 in.....	25c
Queer Creek Slips.....	40c





